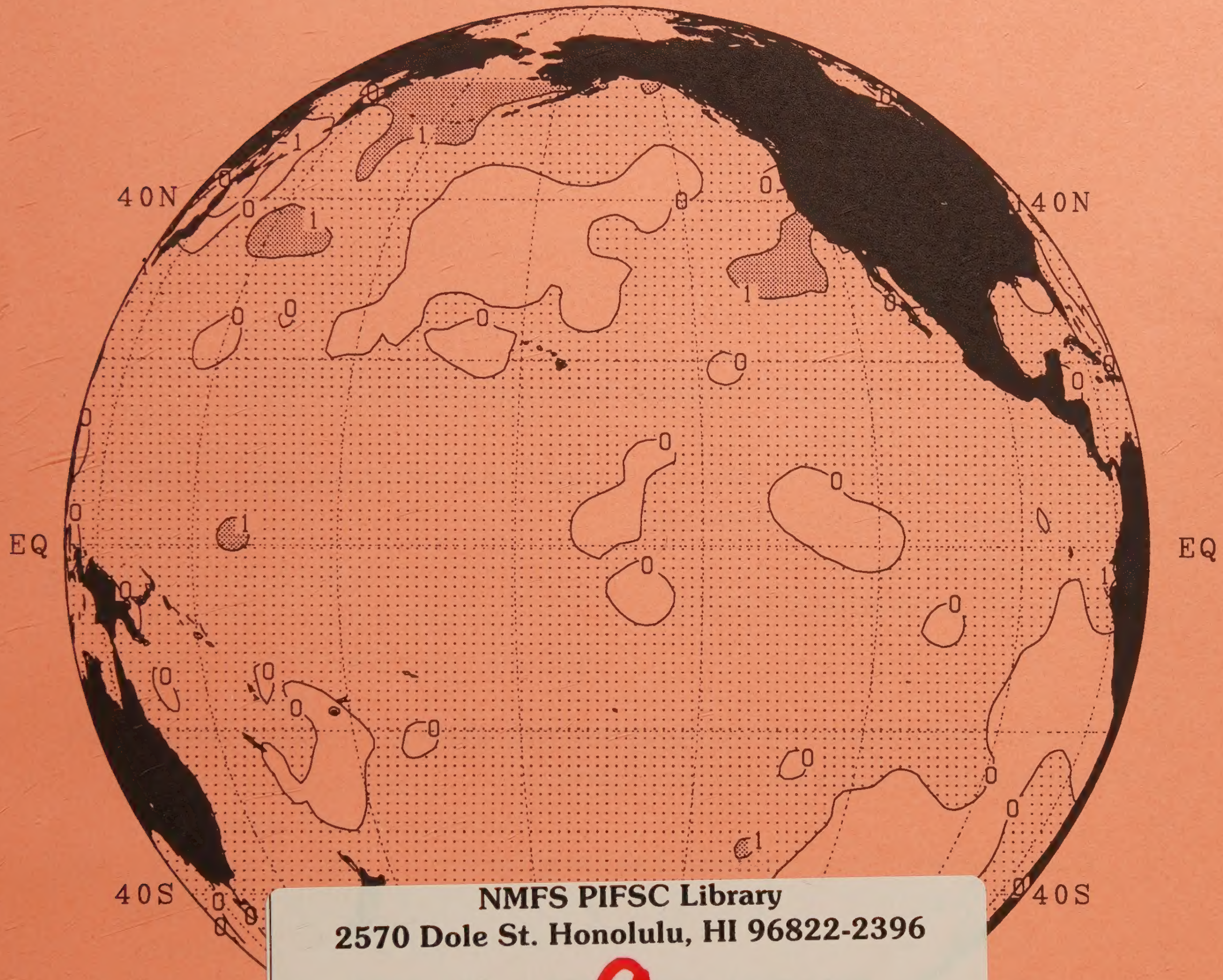
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Monthly Ocean Report
August 2003 (No. 128)



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気象庁 気候・海洋気象部

平成１５年８月

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Monthly Ocean Report is prepared by the Office of Marine Prediction, Climate and Marine Department, Japan Meteorological Agency.

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表紙は、2003 年 8 月の太平洋の月平均海面水温偏差図です。
陰影部は、平年より高温の海域を示しています。

The figure on the front cover shows the monthly mean SST anomalies for August 2003 in the Pacific Ocean.
Areas of positive anomalies are shaded.

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海況の特徴（２００３年８月）

日本近海の海況

海面水温は、35°N以北で平年より0.5℃以上低く、オホーツク海南部、北日本の沿岸、及び能登沖で平年より1℃以上低かった。深さ100mで5℃以下の親潮系冷水の沿岸よりの分枝は、平年より大きく南下し、上・中旬に宮城県沖まで達していた（図４、図６）。

黒潮は、四国から紀伊半島にかけて接岸し、東海沖を東に流れていた。その後、33.5°N、138.5°E付近で北東に向きを変え、三宅島付近を通過して、房総半島沖を北東に流れていた（図９）。

太平洋の海況

太平洋赤道域の海面水温は、ほぼ全域で平年より高く、165°E 付近では+1℃を超える正偏差が見られた。一方、ペルー沖の10°S、90°W付近では平年より0.5℃以上低かった。

北太平洋の海面水温は、ベーリング海、35°N、160°E付近、及び30°N、130°W付近で平年より1℃以上高かった（図１７）。

Highlights August 2003

Seas adjacent to Japan

SSTs were more than 0.5℃ below normal in the seas north of 35°N, and more than 1℃ below normal in the southern part of the Sea of Okhotsk, off Noto, along the coasts of Hokkaido and Tohoku. The coastal branch of the Oyashio cold water extended considerably southward throughout the month, and reached off Miyagi prefecture in early and mid August (Fig. 4, Fig. 6).

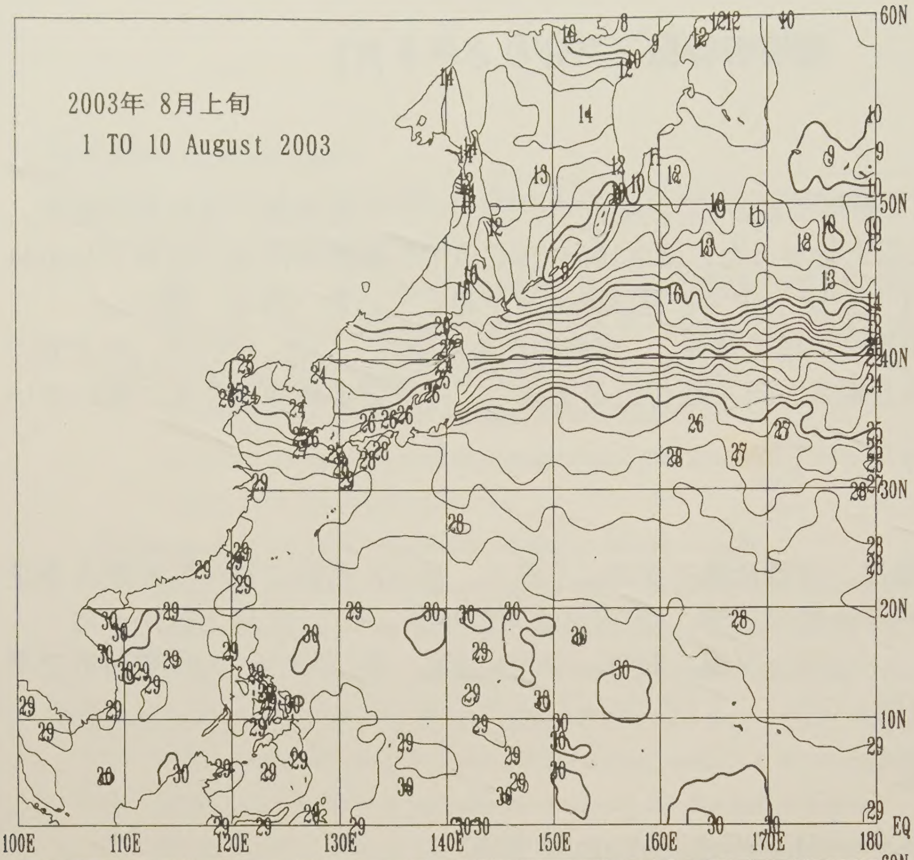
The Kuroshio flowed close to coasts from Shikoku to the Kii Peninsula. It flowed eastward off Tokai, turned NE-ward around 33.5°N, 138.5°E, passed near Miyake Island, and flowed NE-ward off the Boso Peninsula (Fig. 9).

Pacific Ocean

In the equatorial Pacific, SSTs were generally above normal and positive SST anomalies exceeding +1℃ were found around 165°E. SSTs were more than 0.5℃ below normal around 10°S, 90°W off Peru.

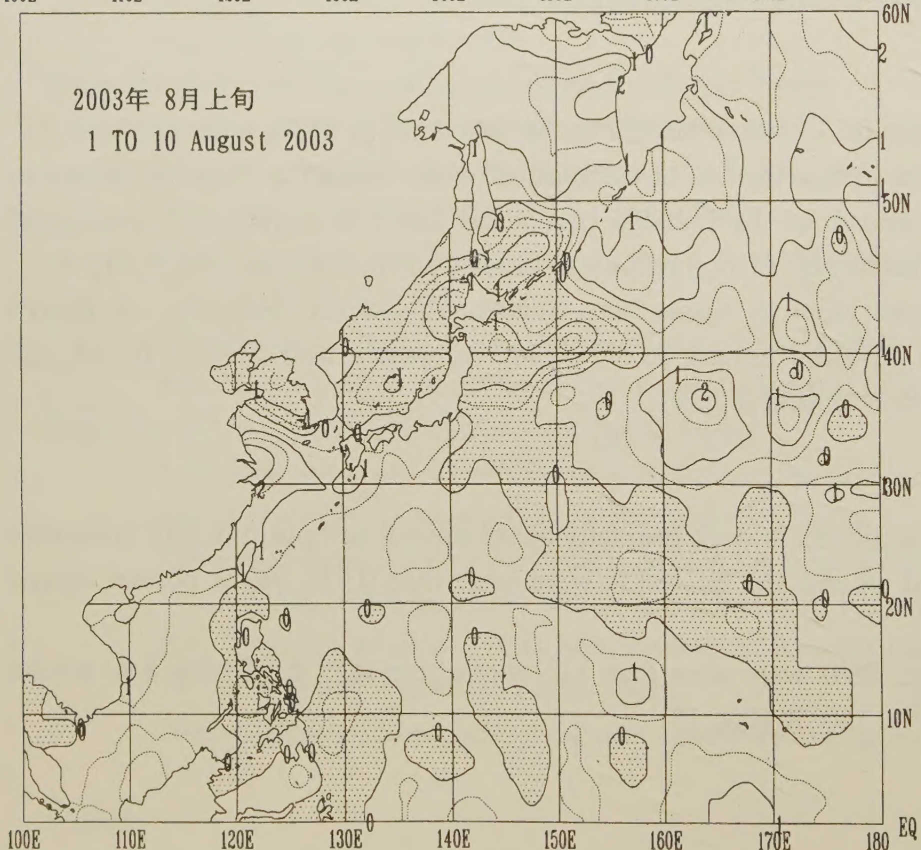
In the North Pacific, SSTs were more than 1℃ above normal in the Bering Sea, around 35°N, 160°E and around 30°N, 130°W (Fig. 17).

Ten-day mean SST & Anomalies



旬平均沿岸水温(℃)
Coastal Water Temperature

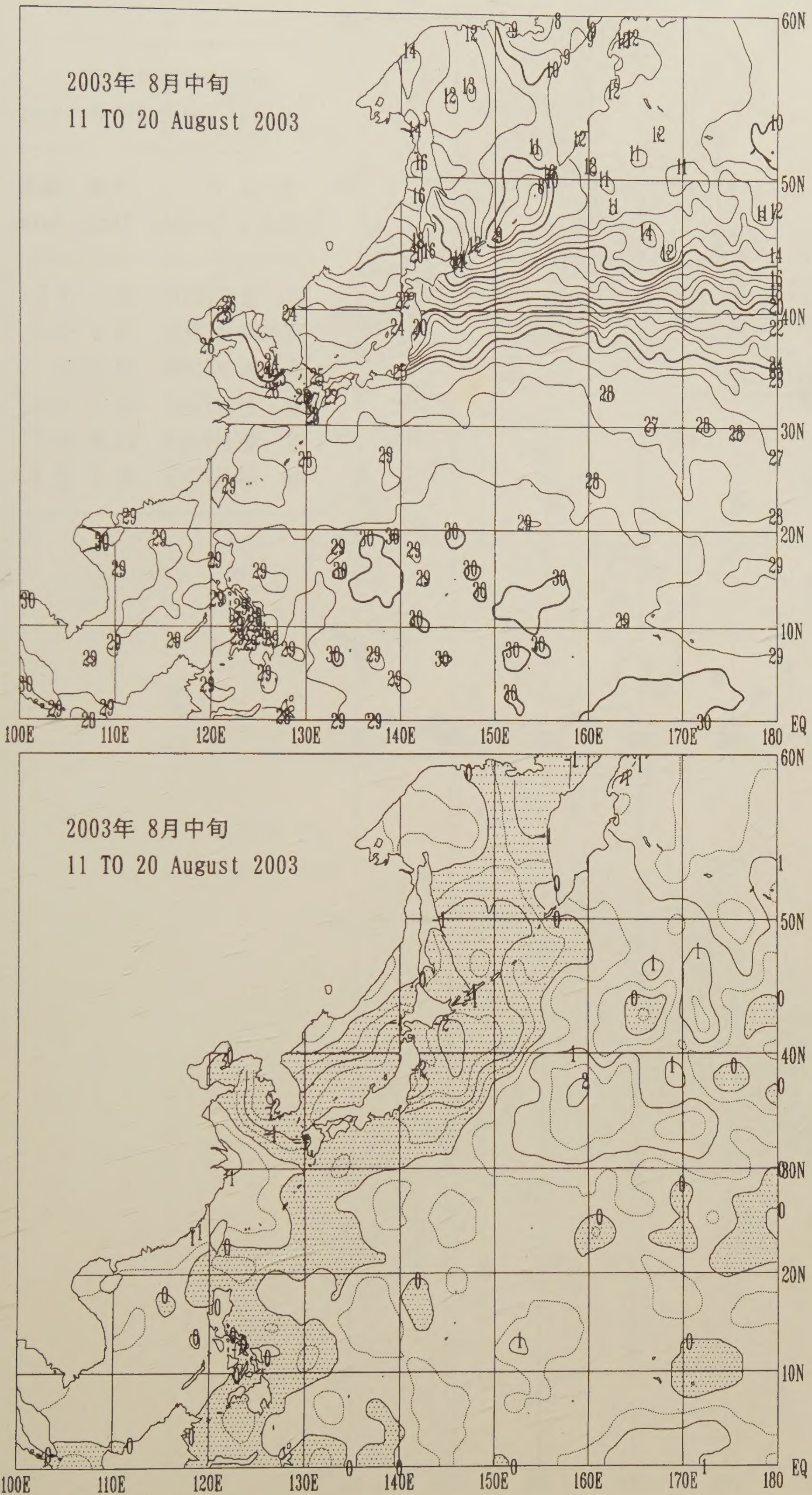
地点名 (Index Number)	水温 Temp.	偏差 Anom.
石 垣(47918)	29.8	0.8
御前崎(47655)	24.9	-0.6
小名浜(47598)	18.2	-2.2
宮 古(47585)	16.0	-2.8
江 差(47428)	20.1	-1.9
浜 田(47755)	25.6	-0.6



第1図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2003年 8月上旬)

Fig. 1 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 1st ten-day period in August 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Ten-day mean SST & Anomalies

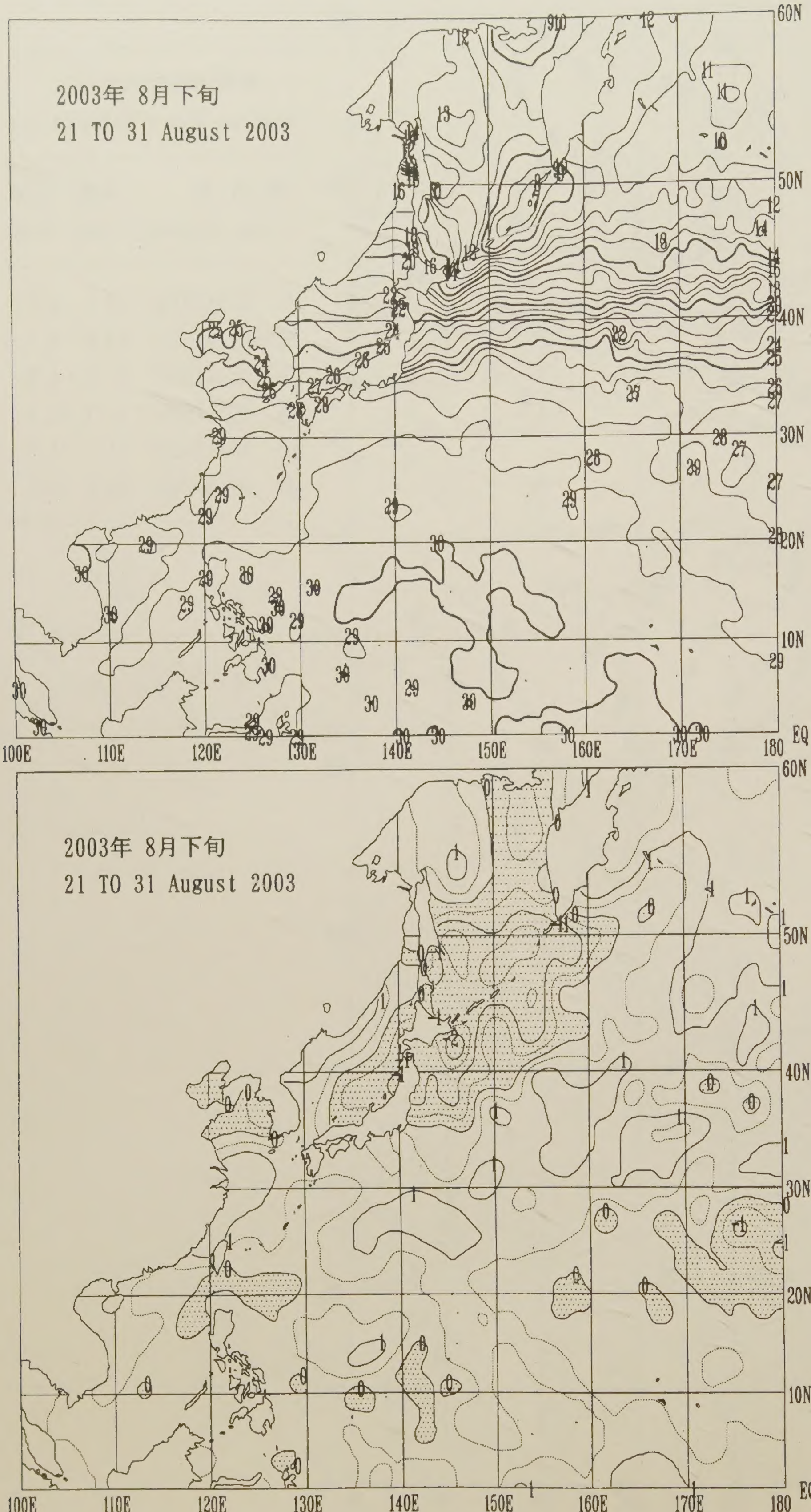


旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.7	0.7
御前崎(47655)	23.0	-3.1
小名浜(47598)	17.6	-3.8
宮　古(47585)	17.2	-2.5
江　差(47428)	21.1	-1.9
浜　田(47755)	24.0	-2.6

第2図 北西太平洋旬平均海面水温図(上)及び偏差図(下)(2003年 8月中旬)

Fig. 2 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 2nd ten-day period in August 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

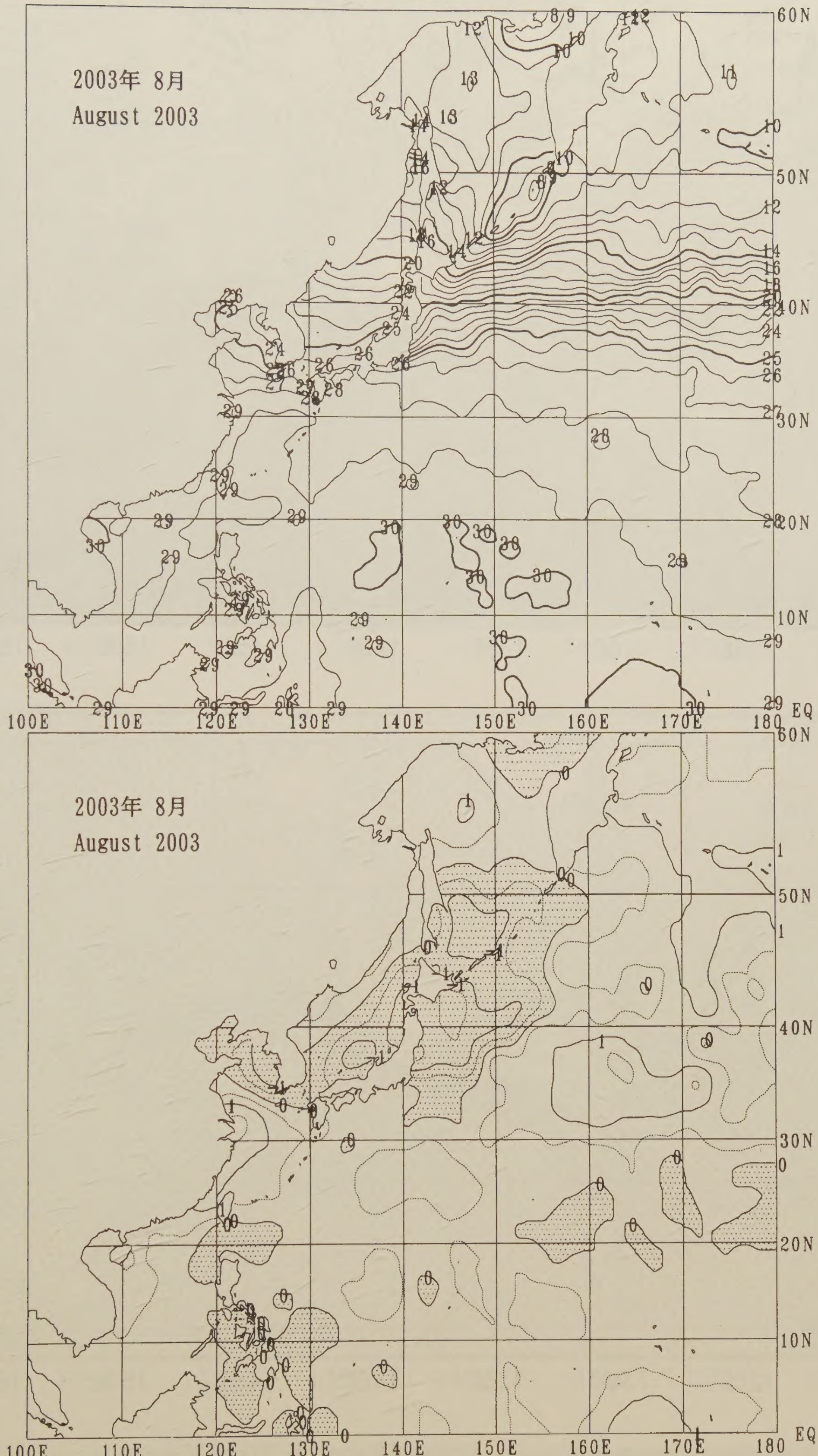


旬平均沿岸水温(℃)
Coastal Water Temperature

地点名 (Index Number)	水温 Temp.	偏差 Anom.
石　垣(47918)	29.5	0.7
御前崎(47655)	25.0	-0.9
小名浜(47598)	19.0	-3.1
宮　古(47585)	18.1	-2.1
江　差(47428)	21.8	-1.7
浜　田(47755)	26.6	-0.2

第3図 北西太平洋旬平均海面水温図(上)及び偏差図(下) (2003年 8月下旬)

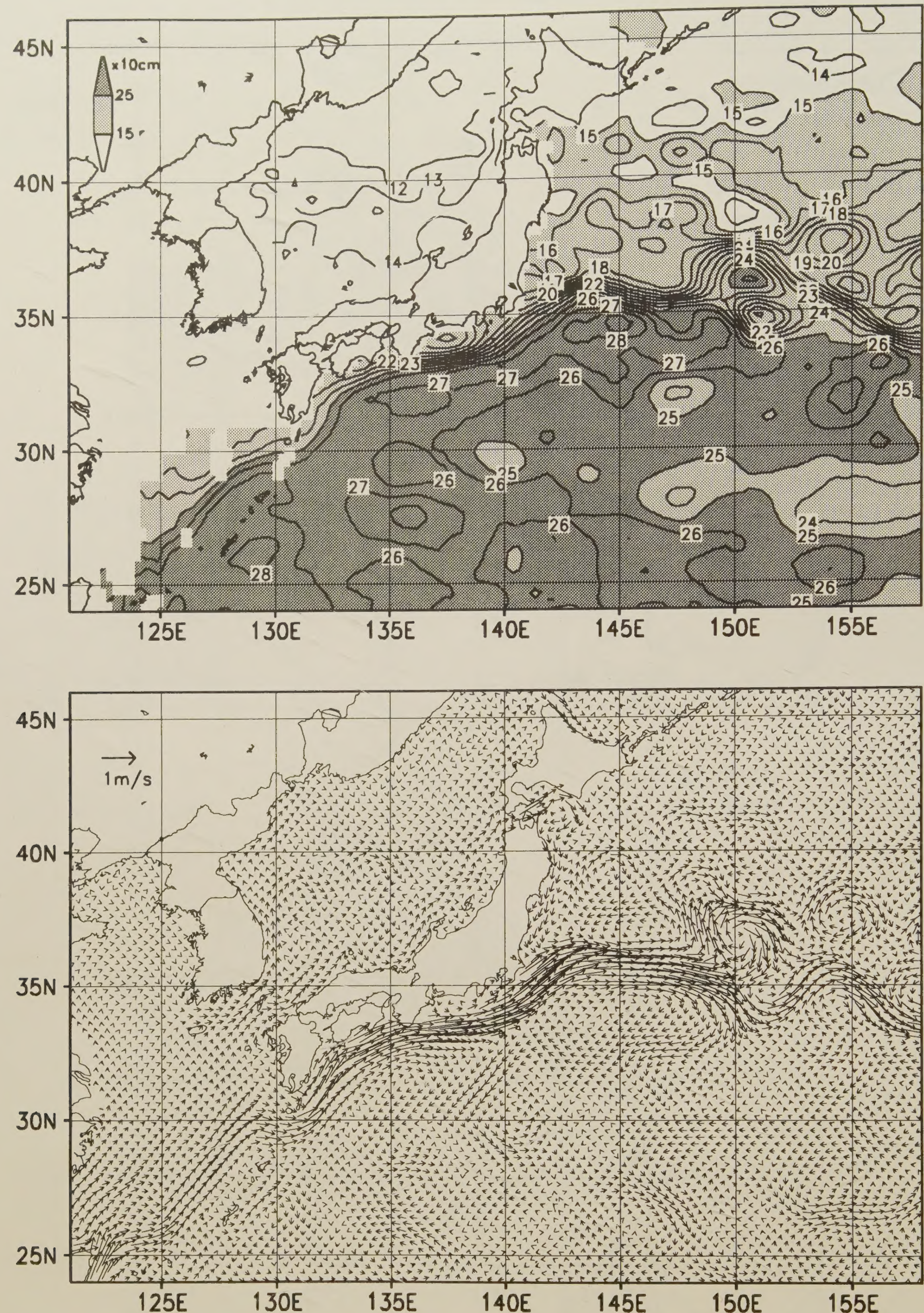
Fig. 3 Ten-day mean SST (top) and anomalies (bottom) in the western North Pacific for the 3rd ten-day period in August 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.



第4図 北西太平洋月平均海面水温図(上)及び偏差図(下) (2003年 8月)

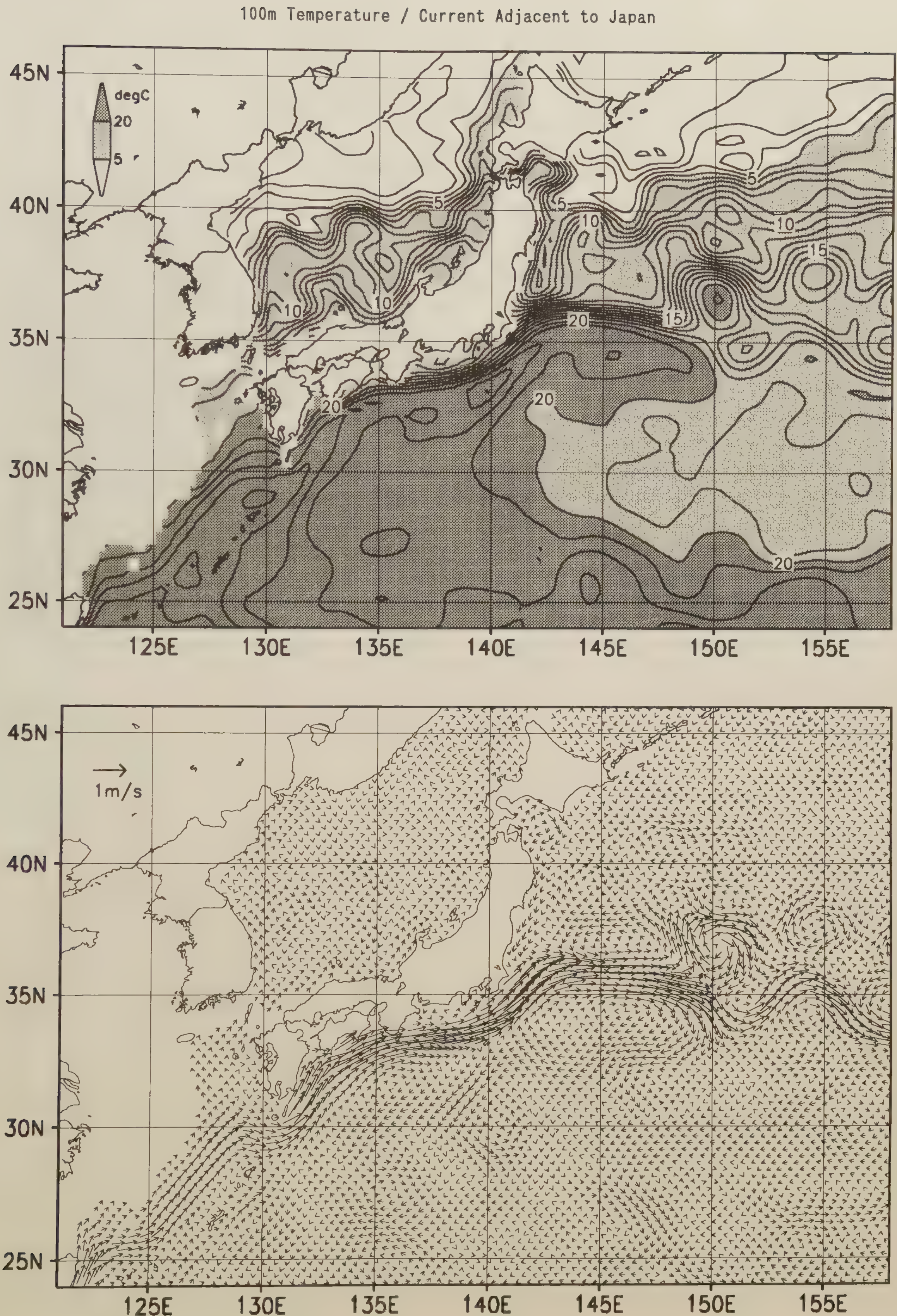
Fig. 4 Monthly mean SST (top) and anomalies (bottom) in the western North Pacific for August 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C and additional anomaly contours of 0.5°C are shown by broken lines. Negative anomalies are spotted.

Dynamic Height / Sea Surface Current Adjacent to Japan



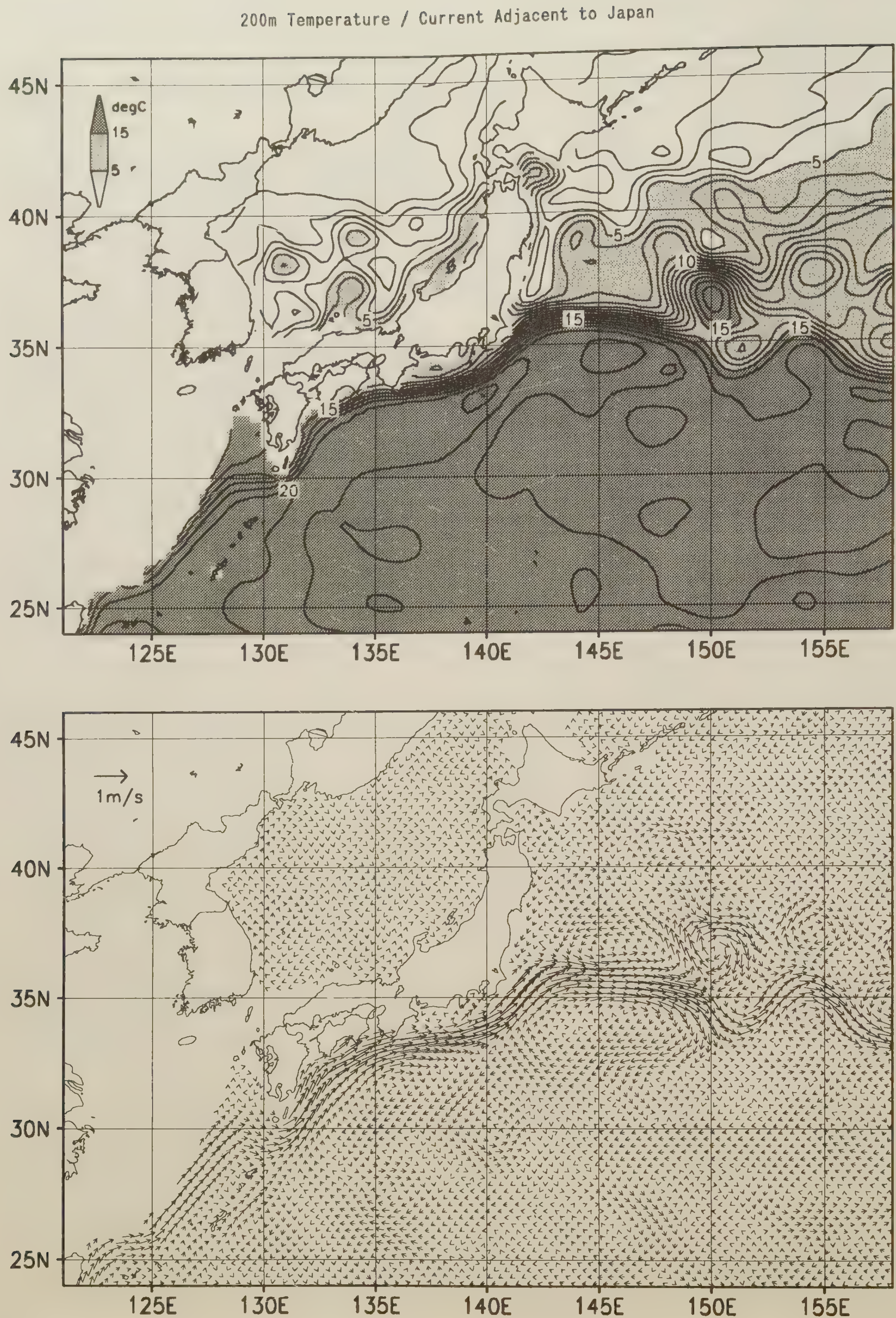
第５図　日本近海月平均海面高度分布図（上）と海面海流図（下）（2003 年 8 月）
（海洋総合解析システムによる）

Fig. 5　Monthly mean sea surface height (top) and current (bottom) in seas adjacent to Japan for August 2003. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



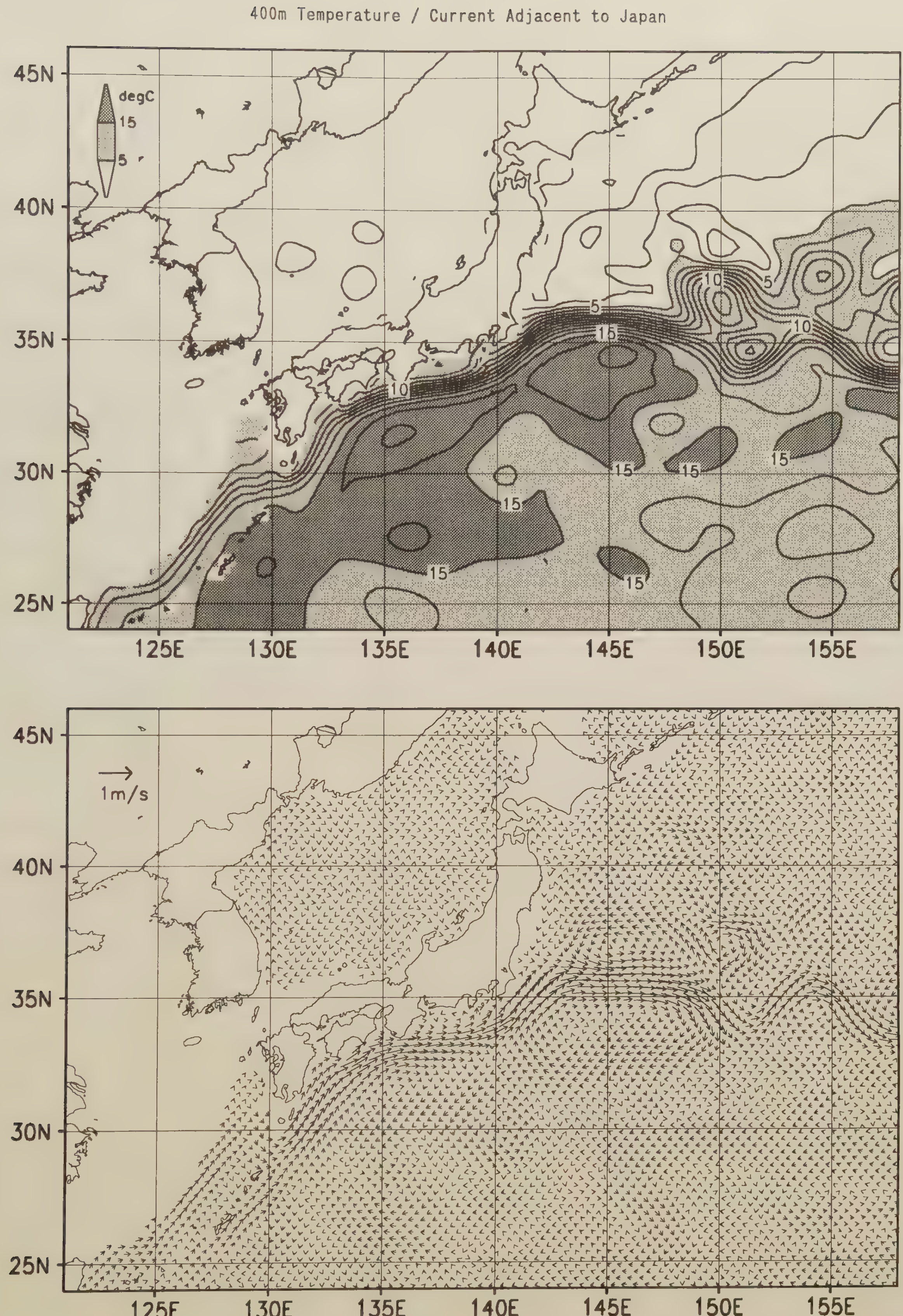
第 6 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 100 m）（2003 年 8 月）
（海洋総合解析システムによる）

Fig. 6　Monthly mean subsurface (100 m) temperature (top) and current (bottom) in seas adjacent to Japan for August 2003. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第 7 図　日本近海月平均表層水温図（上）と表層海流図（下）　（深さ 200 m）（2003 年 8 月）
（海洋総合解析システムによる）

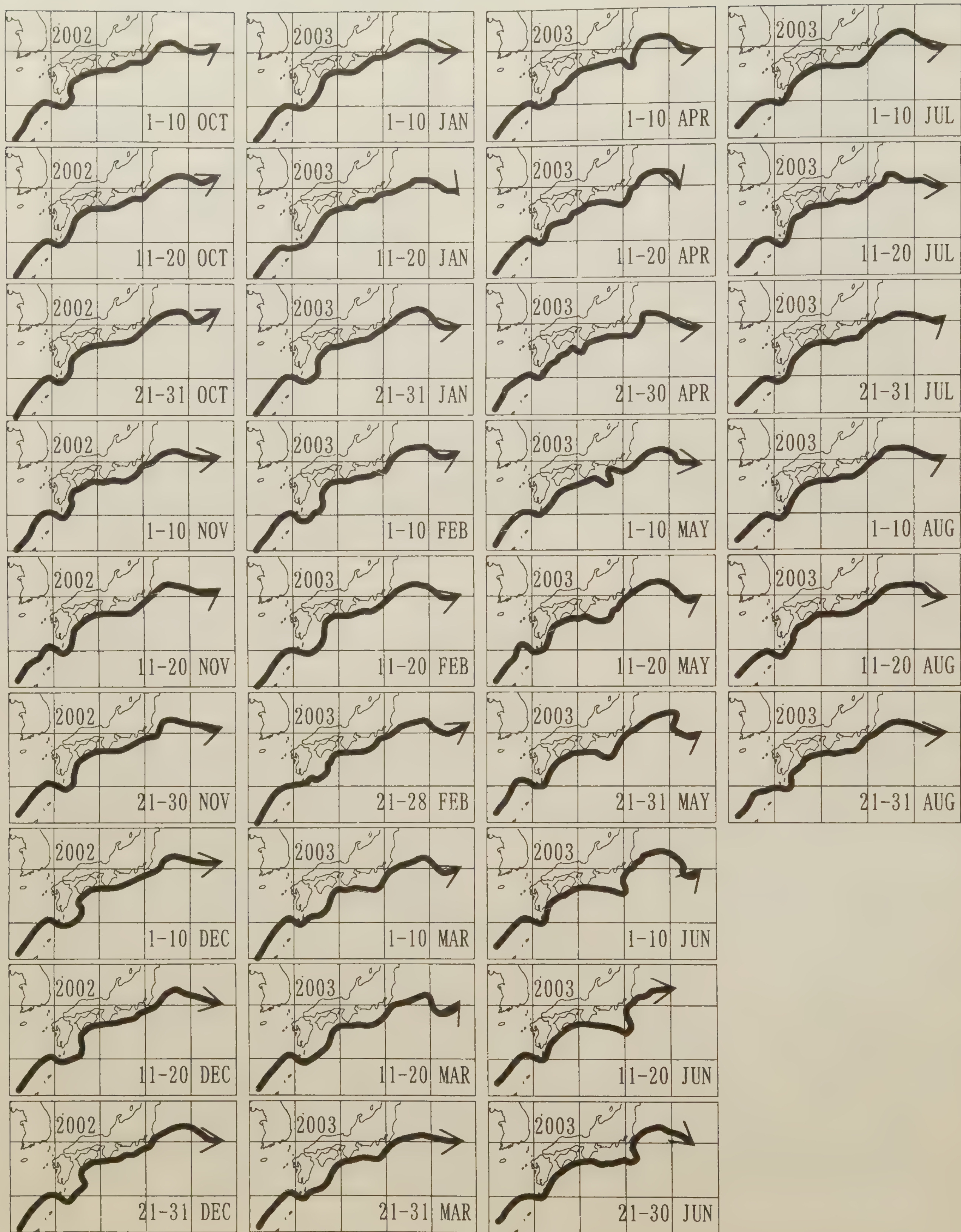
Fig. 7　Monthly mean subsurface (200 m) temperature (top) and current (bottom) in seas adjacent to Japan for August 2003. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)



第 8 図　日本近海月平均表層水温図（上）と表層海流図（下）（深さ 400 m）（2003 年 8 月）
（海洋総合解析システムによる）

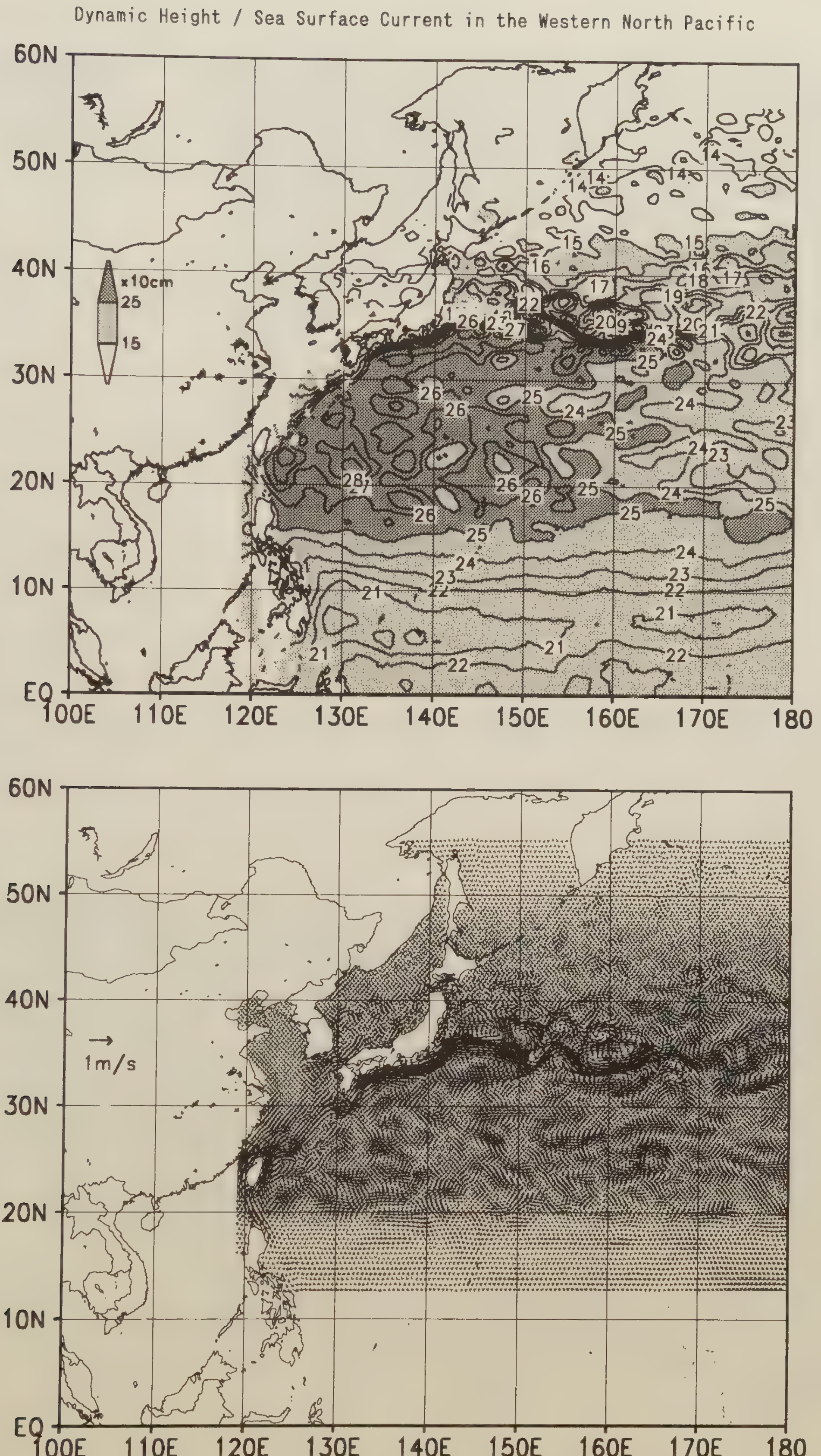
Fig. 8　Monthly mean subsurface (400 m) temperature (top) and current (bottom) in seas adjacent to Japan for August 2003. Contour interval is 1 ℃ (top). (calculated by the Ocean Comprehensive Analysis System)

Location of the Kuroshio axis



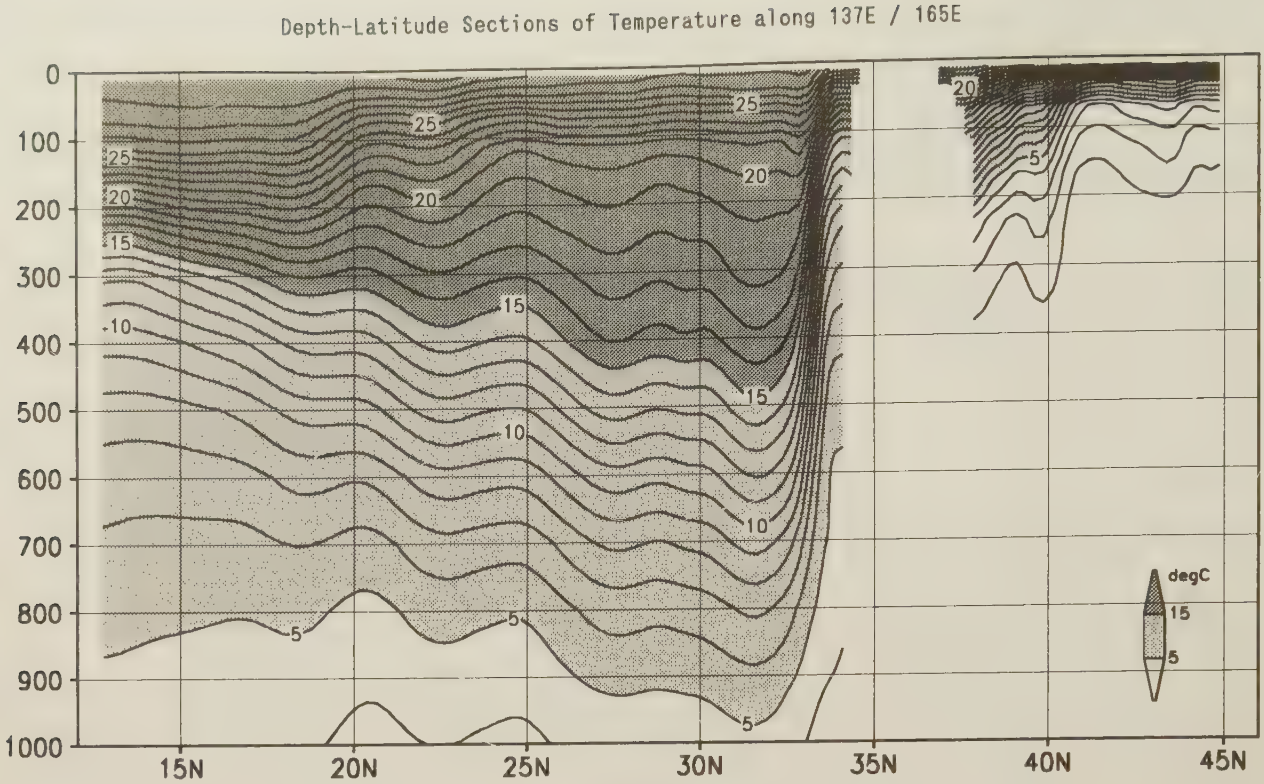
第9図　旬別黒潮流軸図

Fig. 9 Location of the Kuroshio axis



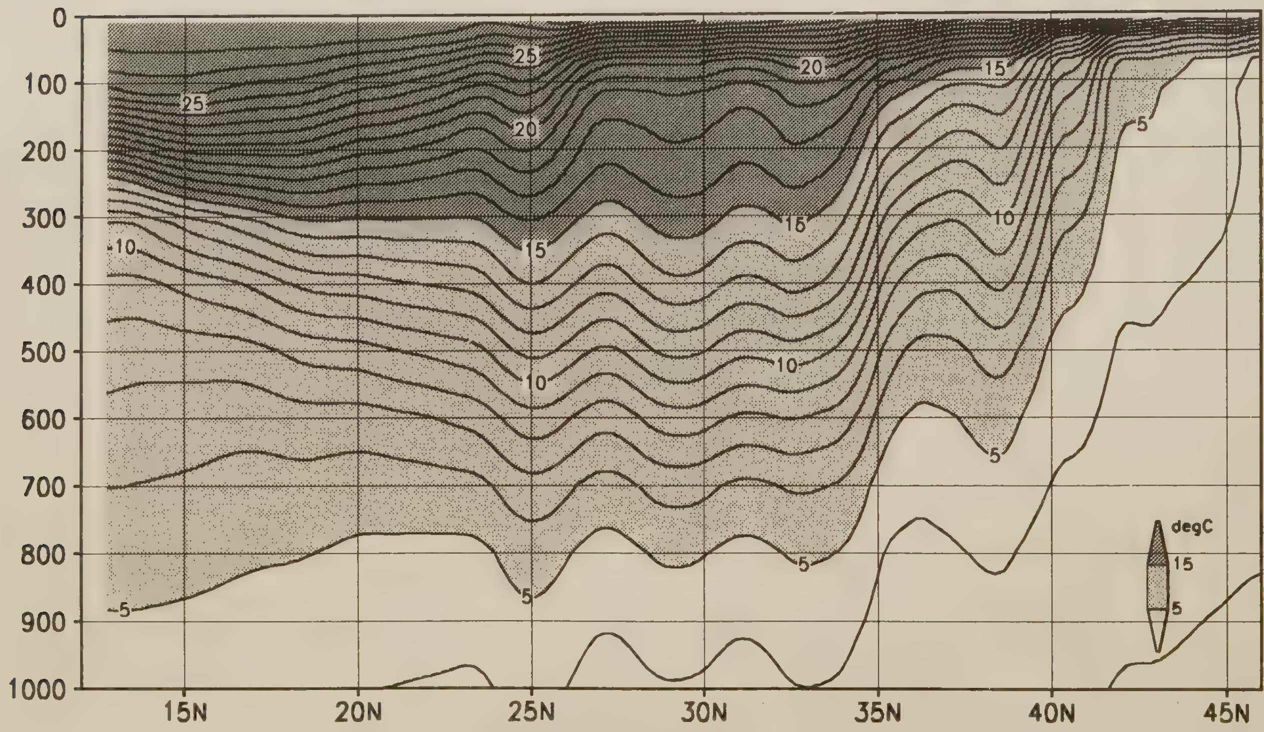
第 10 図　北西太平洋月平均海面高度分布図 (上) と海面海流図 (下)（2003 年 8 月）
（海洋総合解析システムによる）

Fig. 10　Monthly mean sea surface height (top) and current (bottom) in the western North Pacific for August 2003. Contour interval is 10cm (top). (calculated by the Ocean Comprehensive Analysis System)



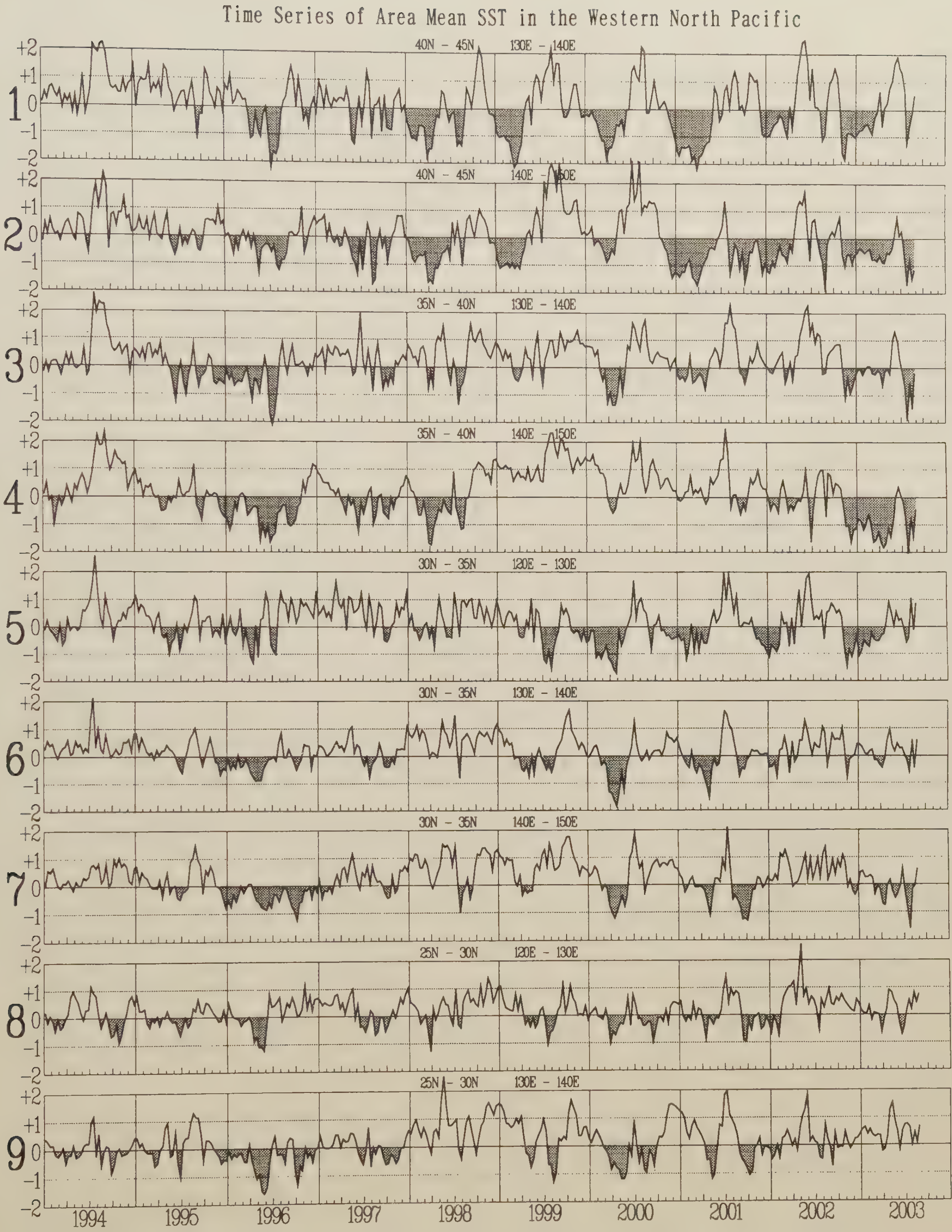
第 11 図　東経 137° 線に沿う月平均表層水温の鉛直断面図 （2003 年 8 月）
（海洋総合解析システムによる）

Fig. 11　Vertical cross section of monthly mean temperature along 137 °E for August 2003. Contour interval is 1 °C. (calculated by the Ocean Comprehensive Analysis System)



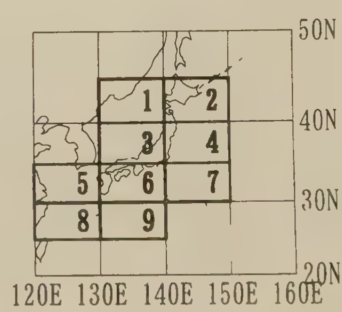
第 12 図　東経 165° 線に沿う月平均表層水温の鉛直断面図 （2003 年 8 月）
（海洋総合解析システムによる）

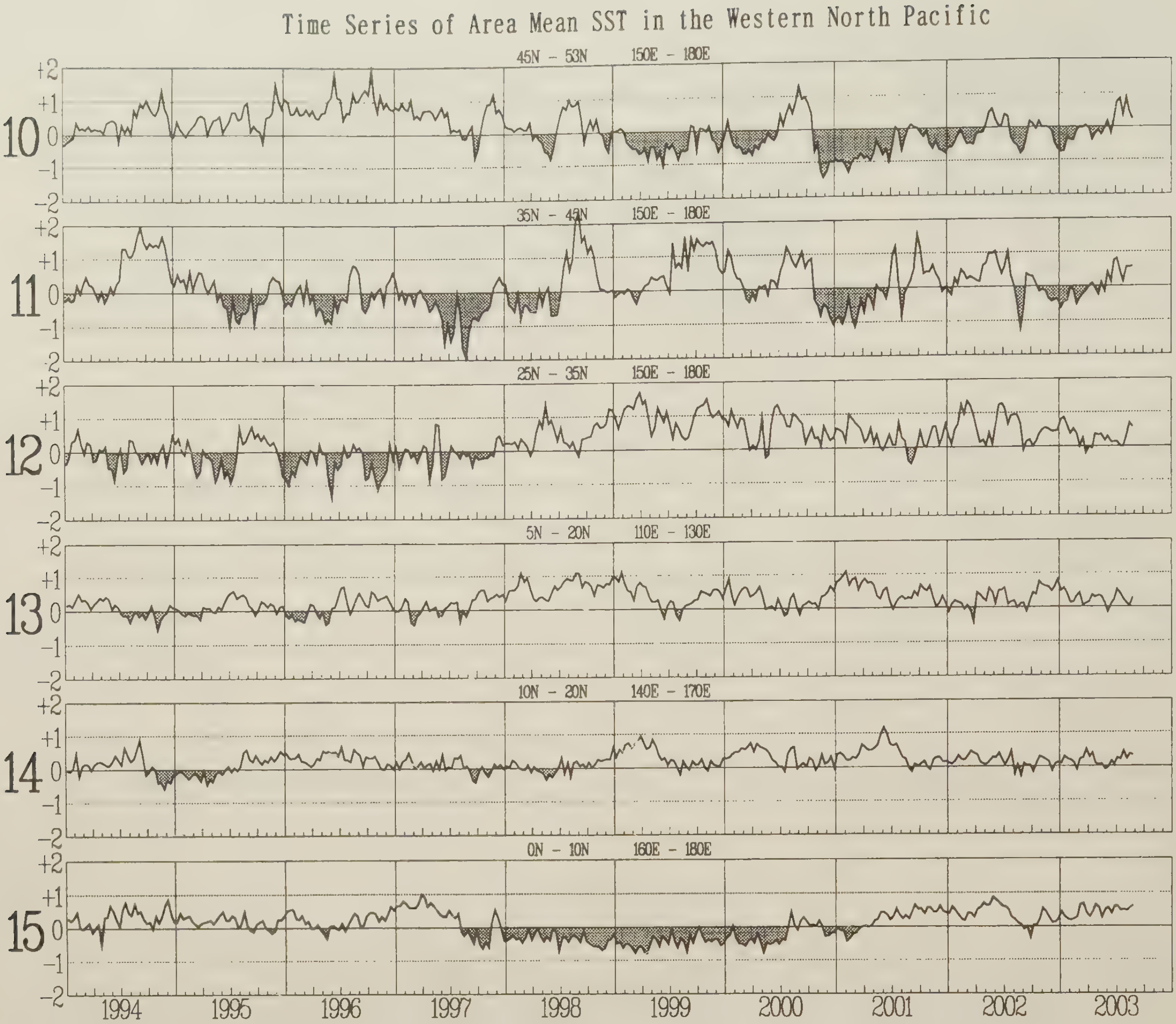
Fig. 12　Vertical cross section of monthly mean temperature along 165 °E for August 2003. Contour interval is 1 °C. (calculated by the Ocean Comprehensive Analysis System)



第13図　海域別旬平均海面水温平年偏差時系列図

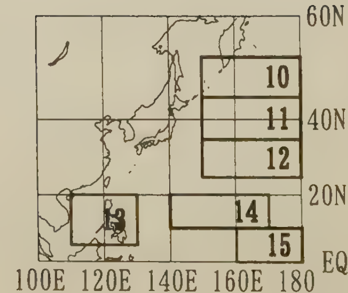
Fig. 13 Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

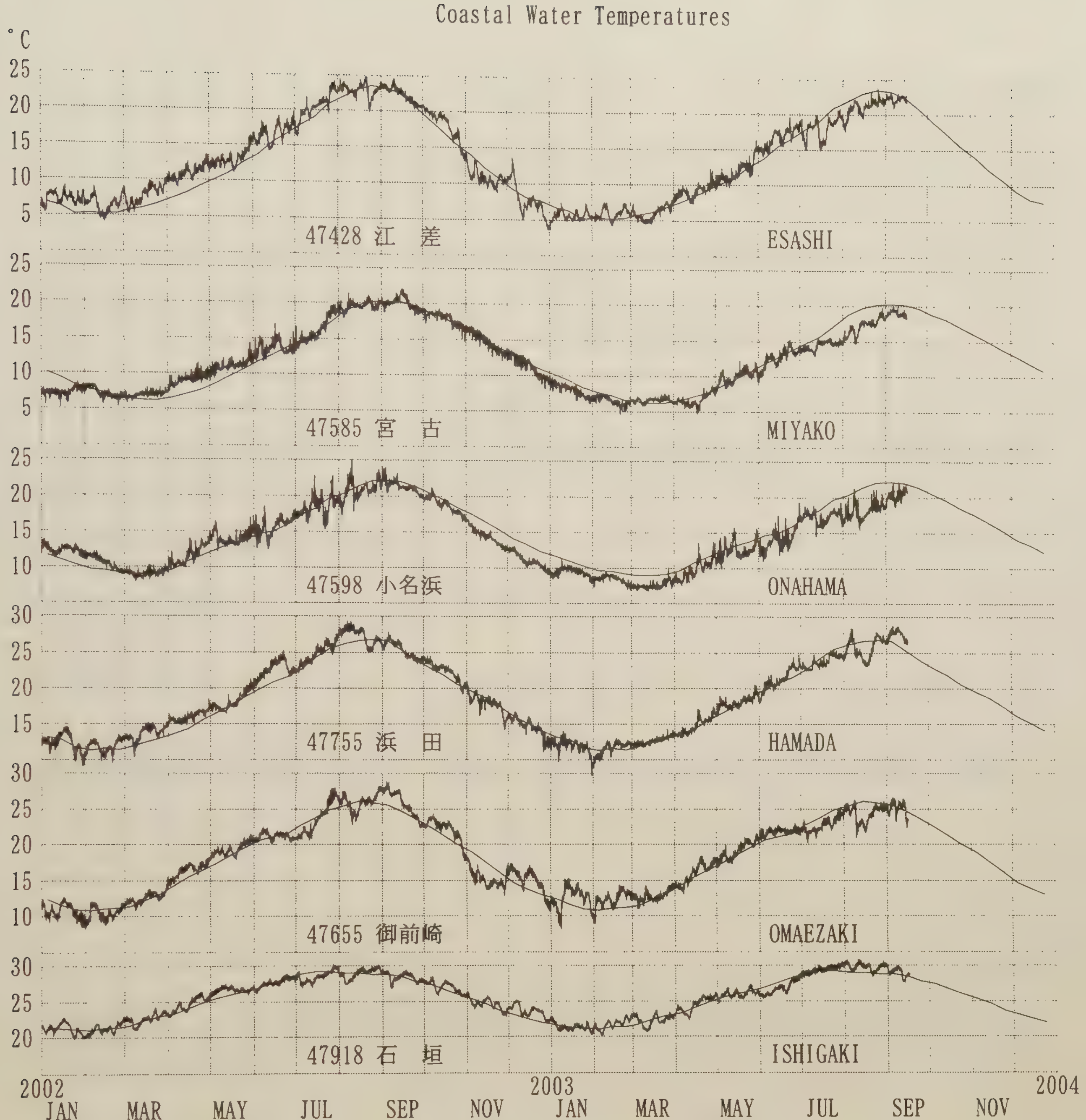


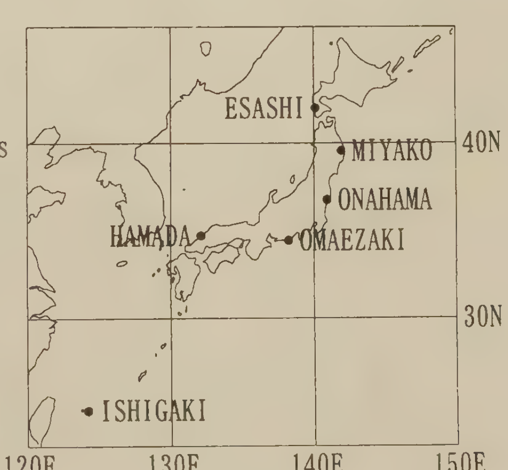


第13図　海域別旬平均海面水温平年偏差時系列図（つづき）

Fig. 13 (continue) Time series of the ten-day mean SST anomalies (°C) in the western North Pacific for the areas shown in the right panel. Negative anomalies are shaded. Anomalies are computed from the JMA climatology (1971-2000).

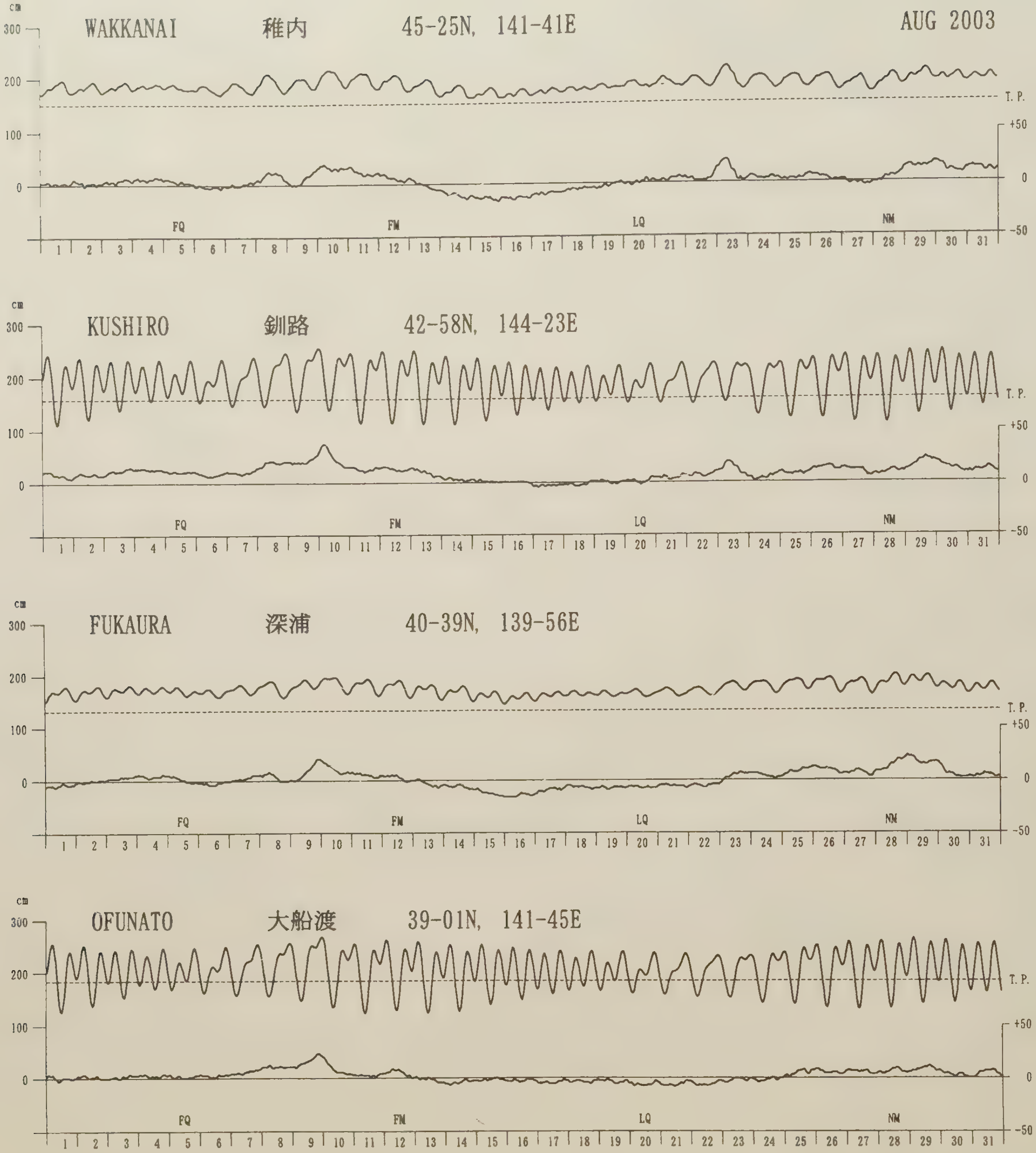






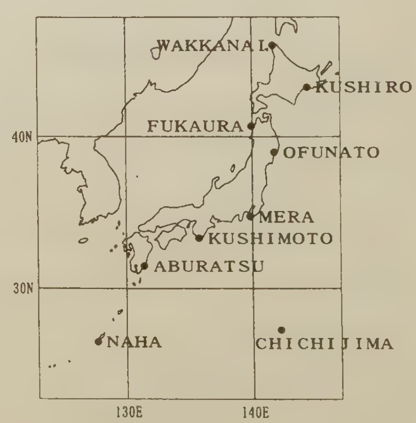
第14図 沿岸水温時系列図

Fig. 14 Time series of hourly coastal water temperatures (°C) measured at 6 coastal stations of the JMA shown in the right panel.
Thin lines show ten-day mean climatology.



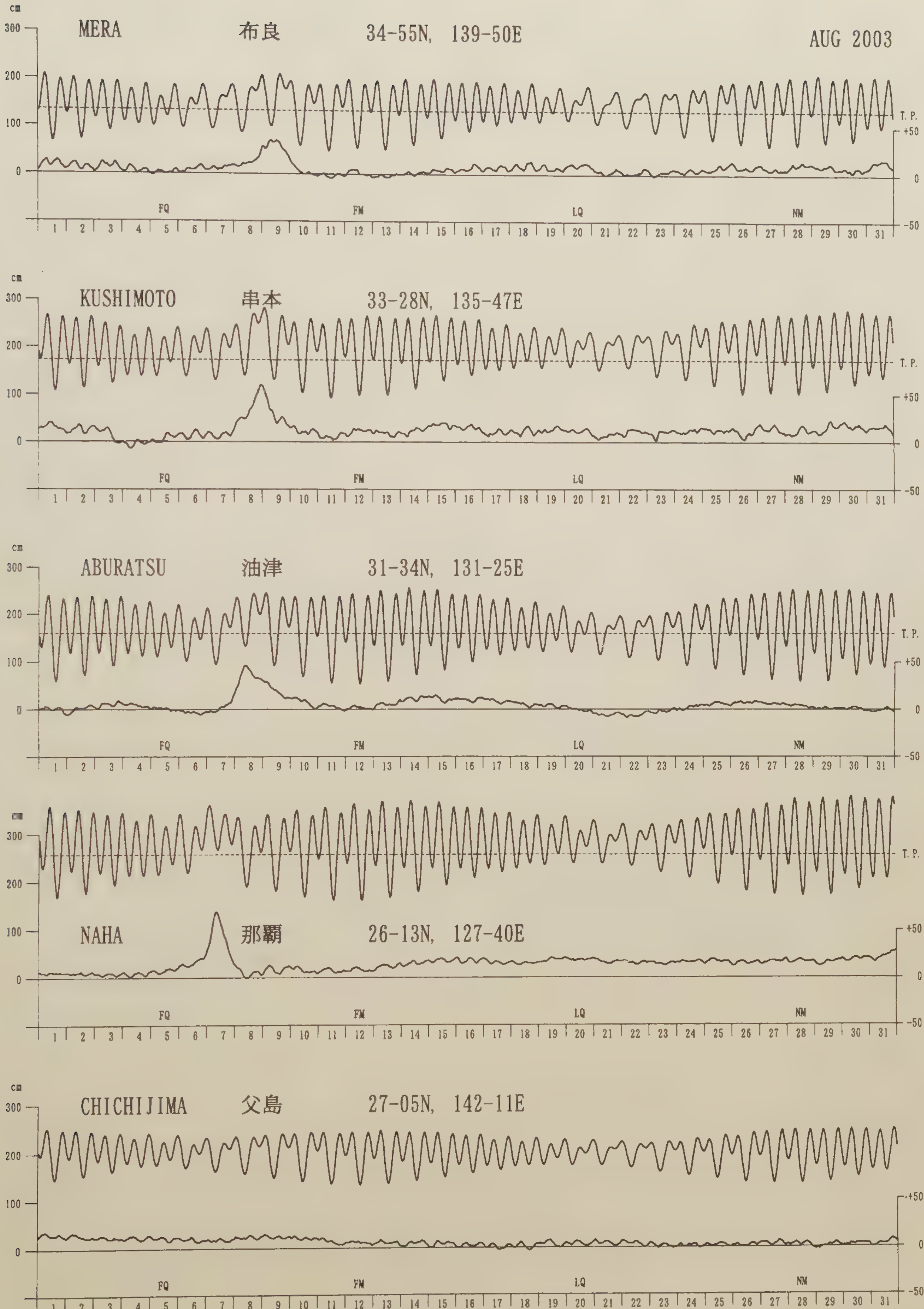
第15図 沿岸潮位時系列図（2003年 8月）

Fig. 15 Time series of hourly sea level observation (upper line) and its anomalies (lower line) at 9 stations of the JMA in the right panel.
Short term variations are removed from raw data.



NM: new moon, FQ: first quarter
FM: full moon, LQ: last quarter
T. P. : Mean sea level of Tokyo Bay (Tokyo Peil)

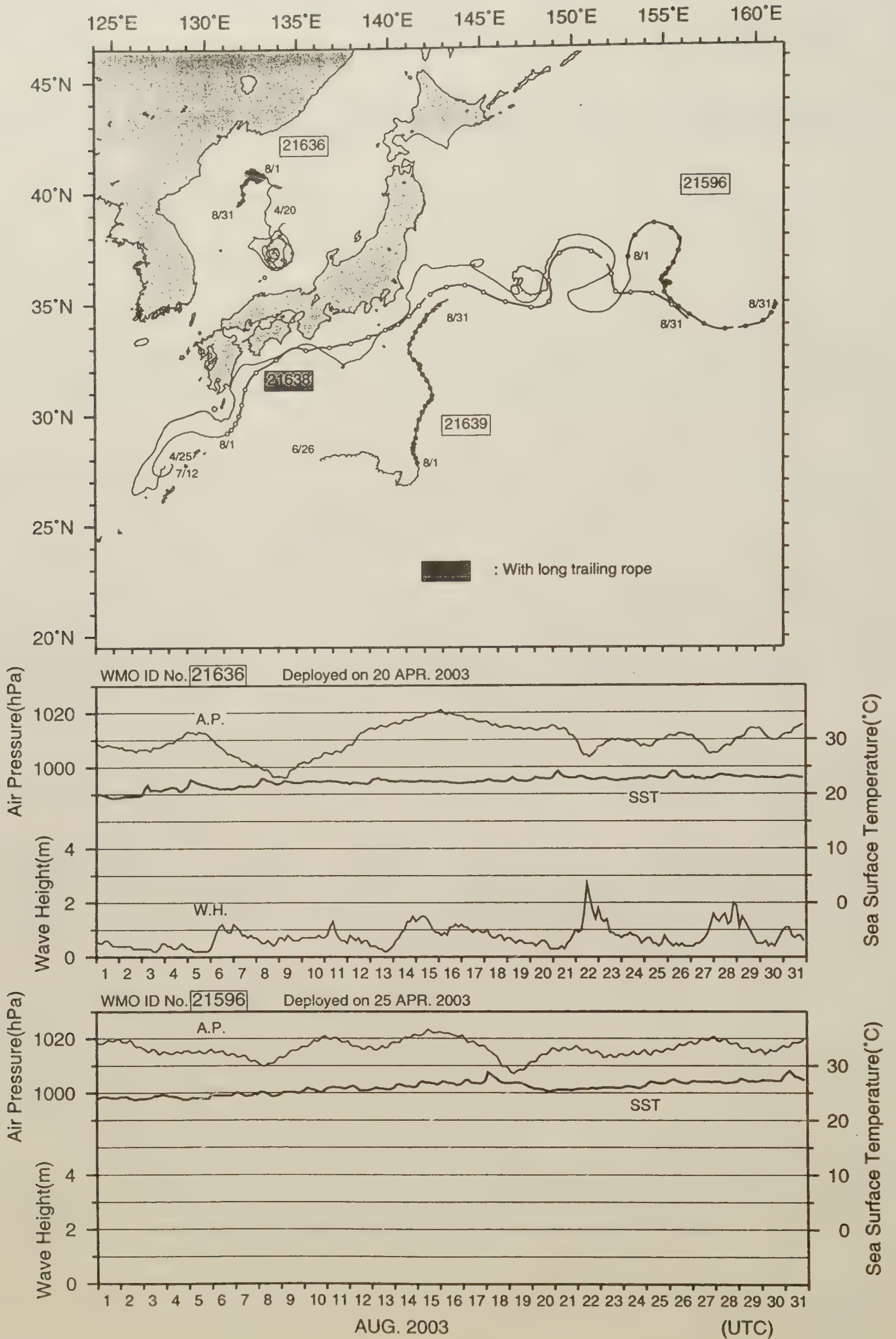
Time series of Sea Level



第15図 つづき

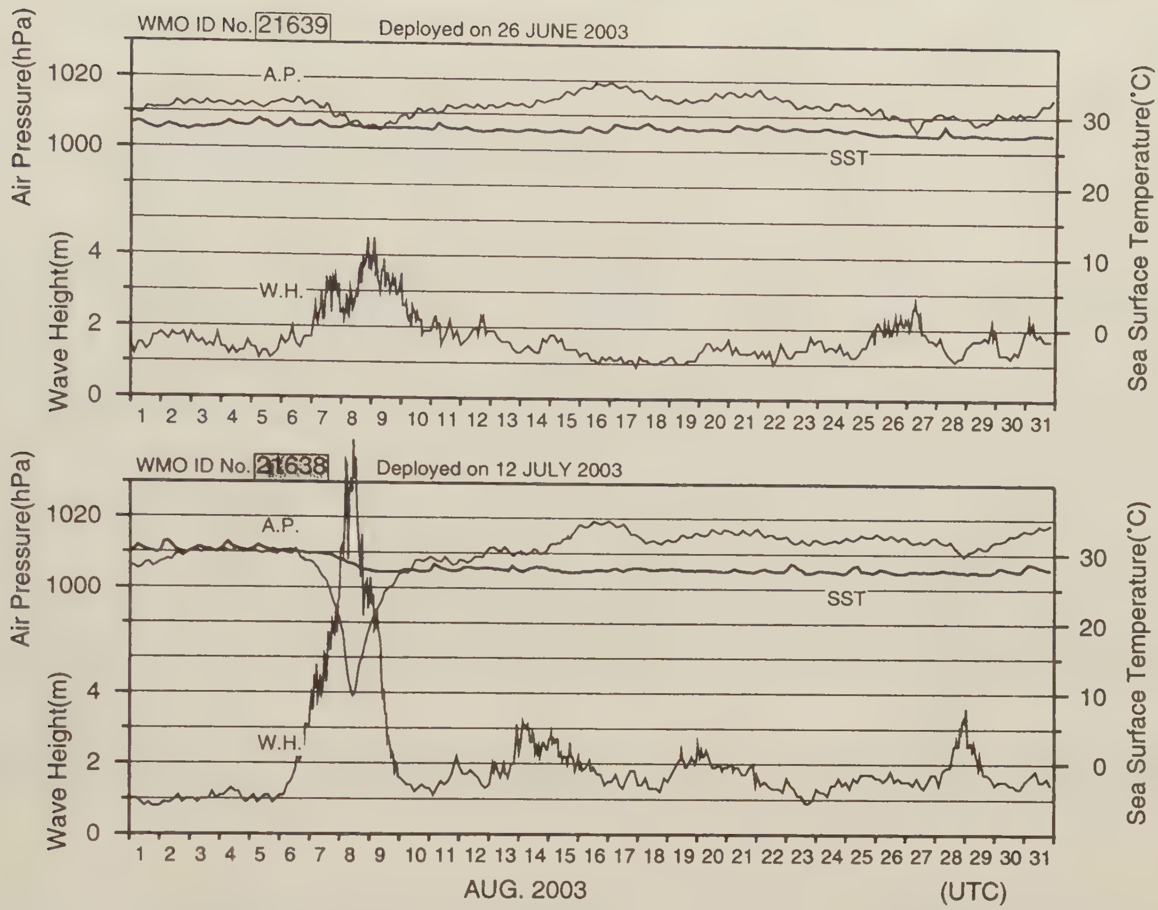
Fig. 15 continue

Ocean Data Buoy Observations



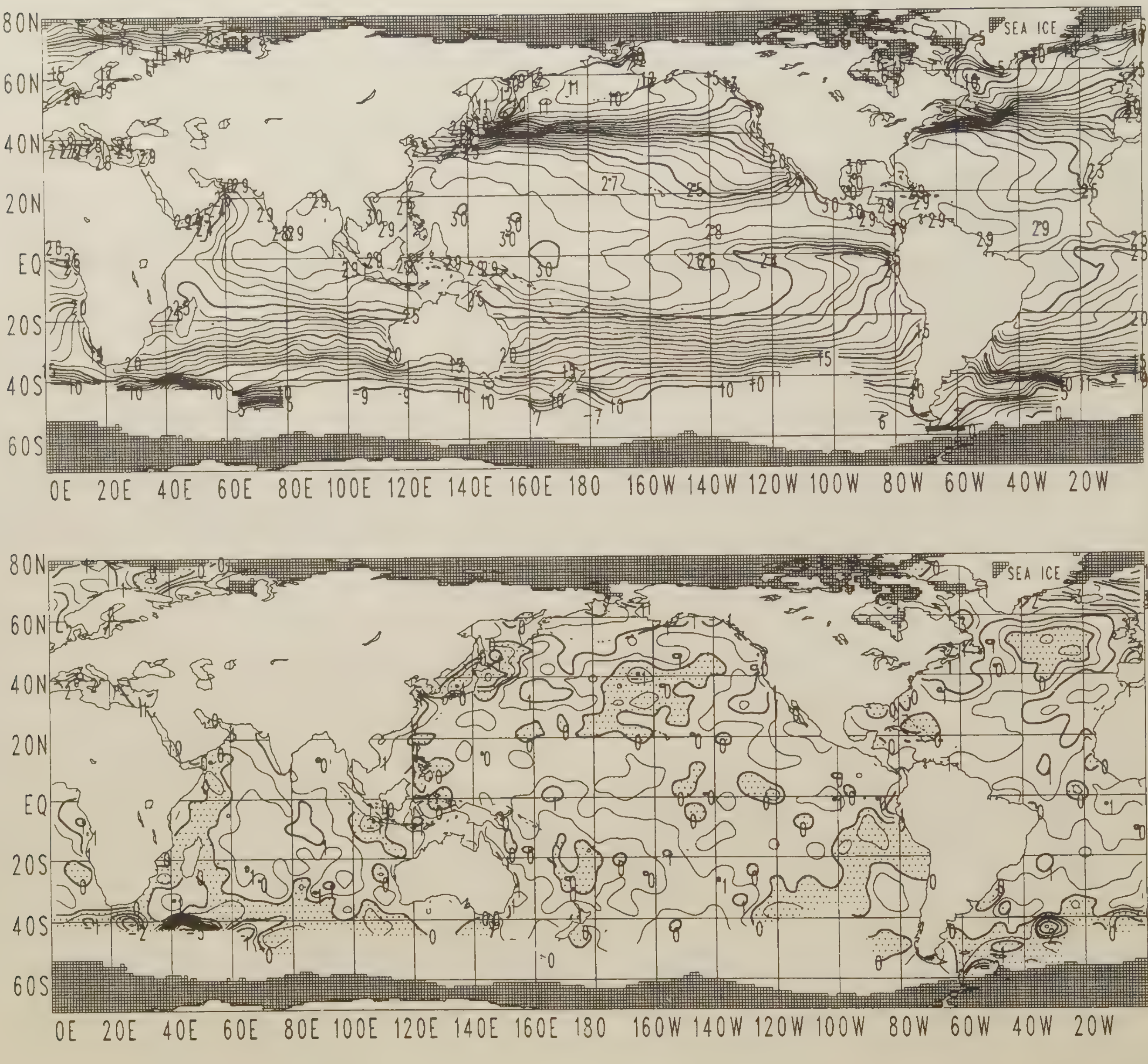
第16図　漂流型海洋気象ブイロボットの軌跡と観測要素の時系列図

Fig.16　Time series of JMA drifting buoy observation.
The upper panel shows paths of the buoys. Circles denote the position at 00h UTC everyday.
The lower panel shows time series of observation data.



第16図 つづき
Fig.16 continue

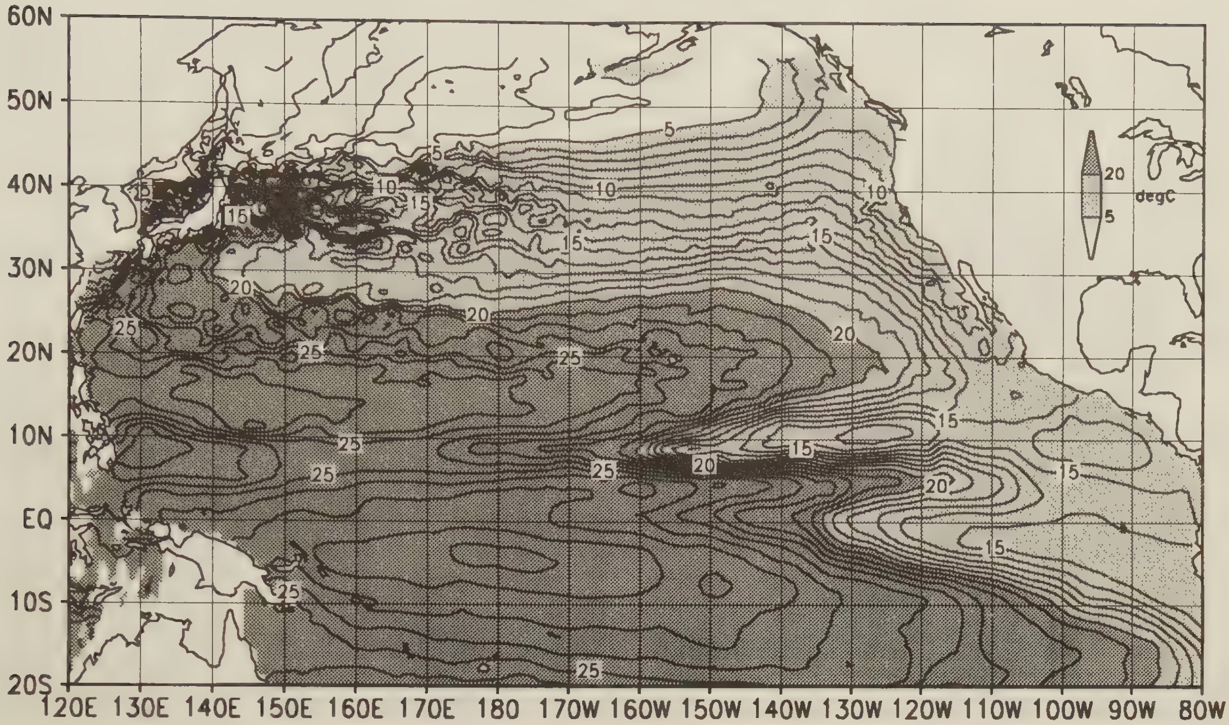
SST & Anomalies in the Global Ocean



第17図　全球月平均海面水温図（上）及び偏差図（下）（2003年 8月）

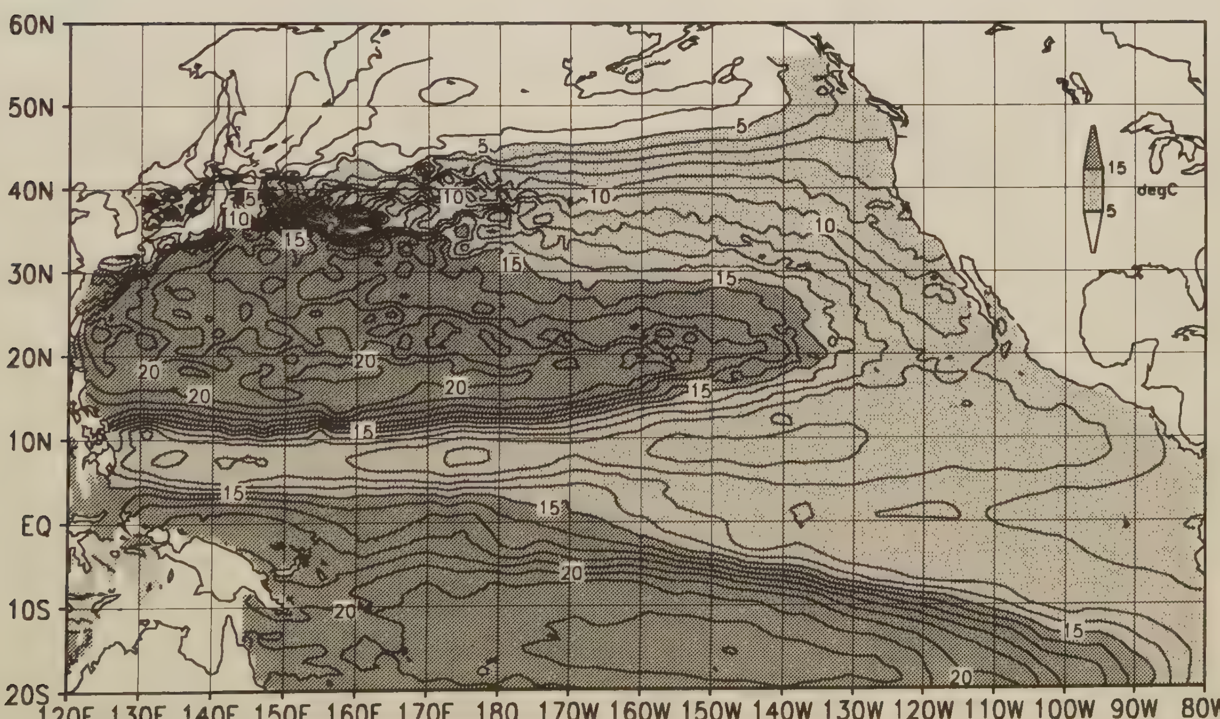
Fig. 17 Monthly mean SST over the global ocean (top) and anomalies (bottom) for August 2003. Anomalies are computed from the JMA climatology (1971-2000). Contour interval is 1°C (top) and additional anomaly contours of ±0.5°C are shown by thin lines. Negative anomalies are spotted. Maximum coverage of sea ice is shaded. Data sources for sea ice are U.S. National Ice Center (polar regions) and JMA (the Sea of Okhotsk).

100m / 200m Temperature in the Pacific Ocean



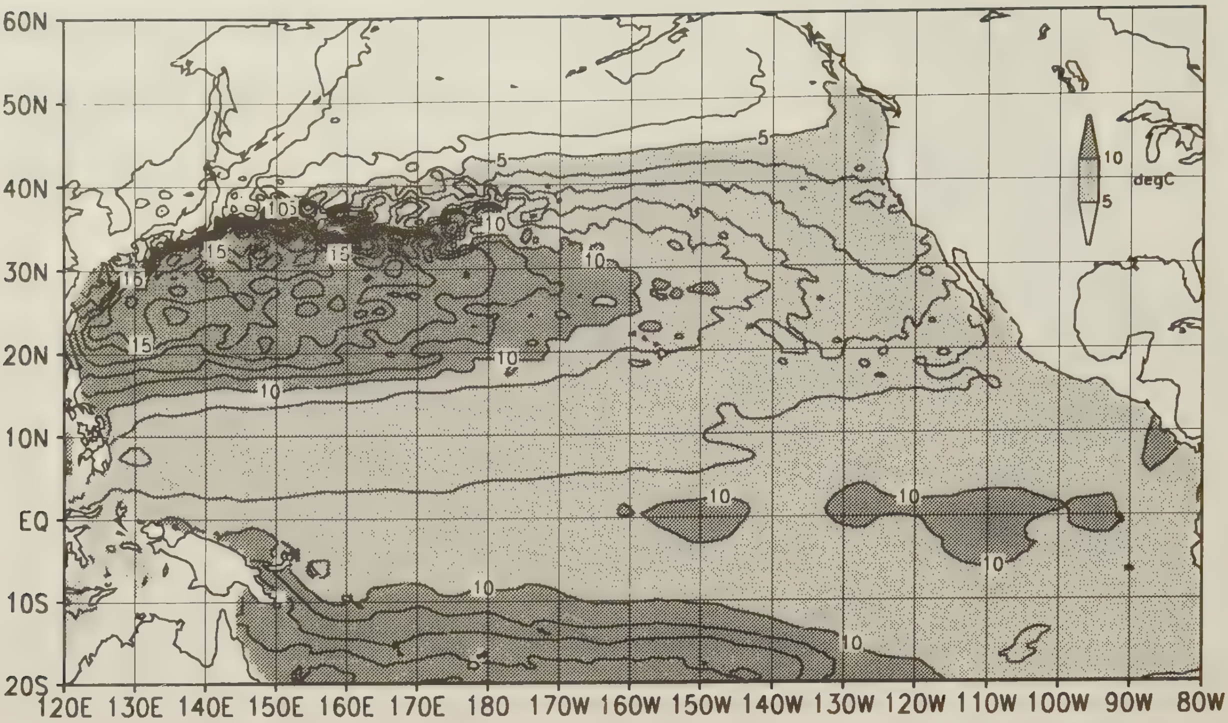
第 18 図　太平洋月平均表層水温図（深さ 100 m）　（2003 年 8 月）
（海洋総合解析システムによる）

Fig. 18　Monthly mean subsurface (100 m) temperature in the Pacific Ocean for August 2003. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



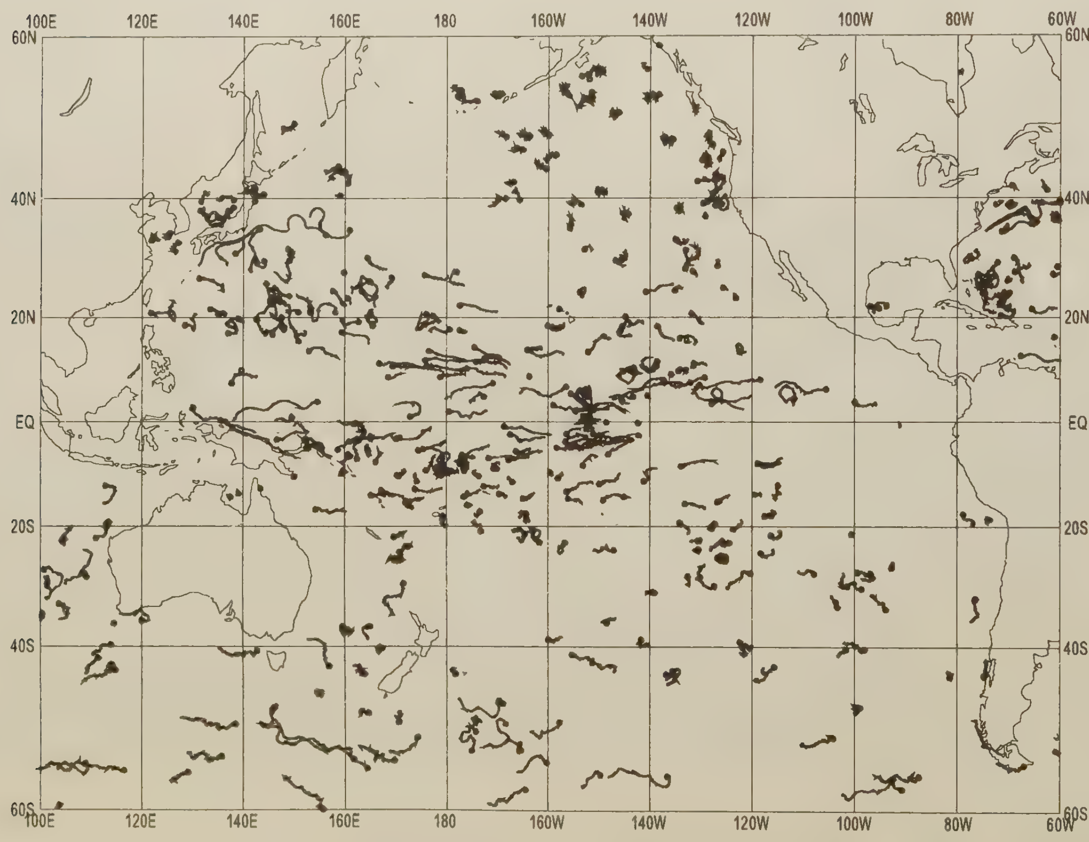
第 19 図　太平洋月平均表層水温図（深さ 200 m）　（2003 年 8 月）
（海洋総合解析システムによる）

Fig. 19　Monthly mean subsurface (200 m) temperature in the Pacific Ocean for August 2003. Contour interval is 1 ℃. (calculated by the Ocean Comprehensive Analysis System)



第 20 図　太平洋月平均表層水温図（深さ 400 m）（2003 年 8 月）
（海洋総合解析システムによる）

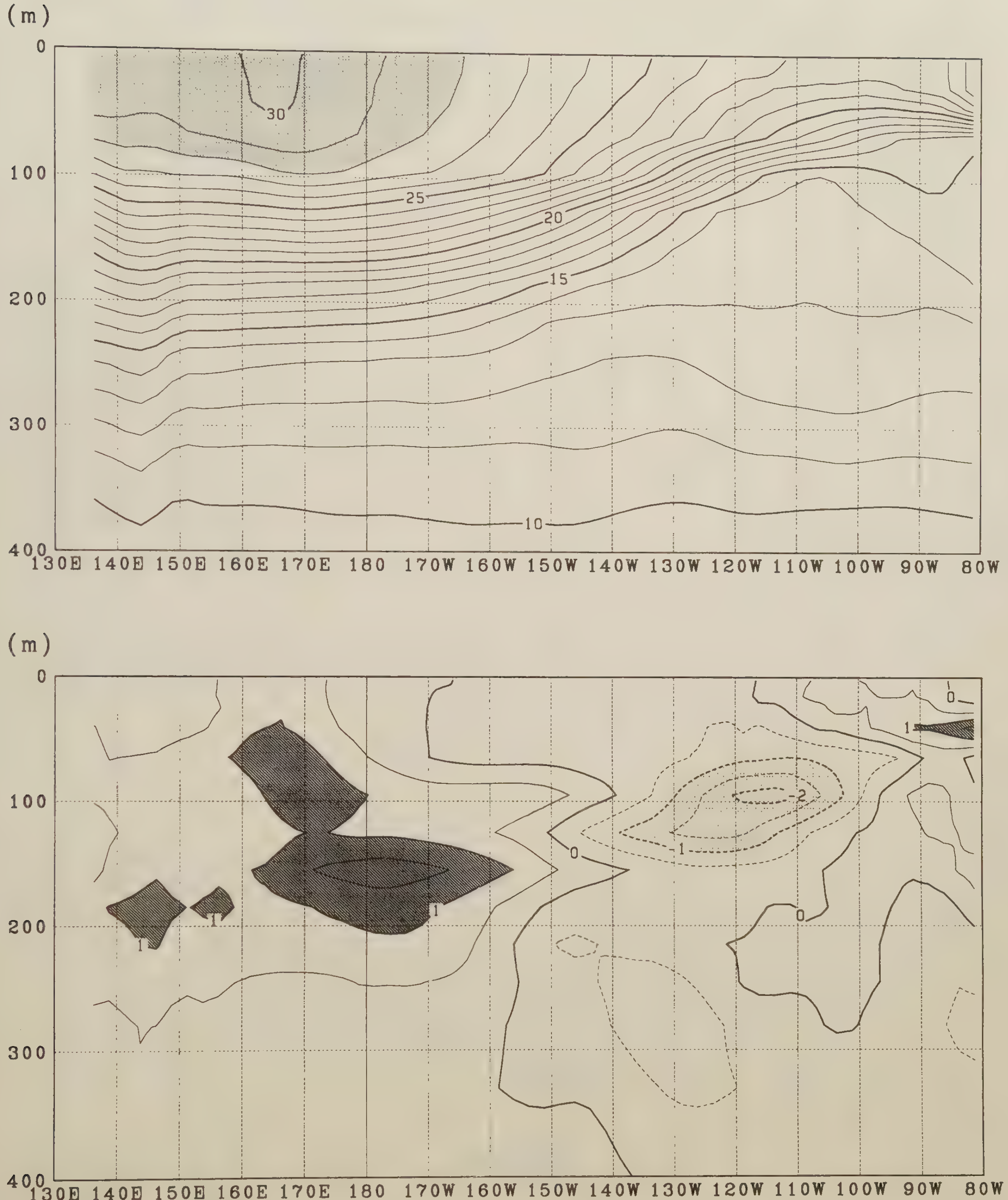
Fig. 20　Monthly mean subsurface (400 m) temperature in the Pacific Ocean for August 2003. Contour interval is 1 ˚C. (calculated by the Ocean Comprehensive Analysis System)



第 21 図　太平洋ブイ流跡図（2003 年 8 月）

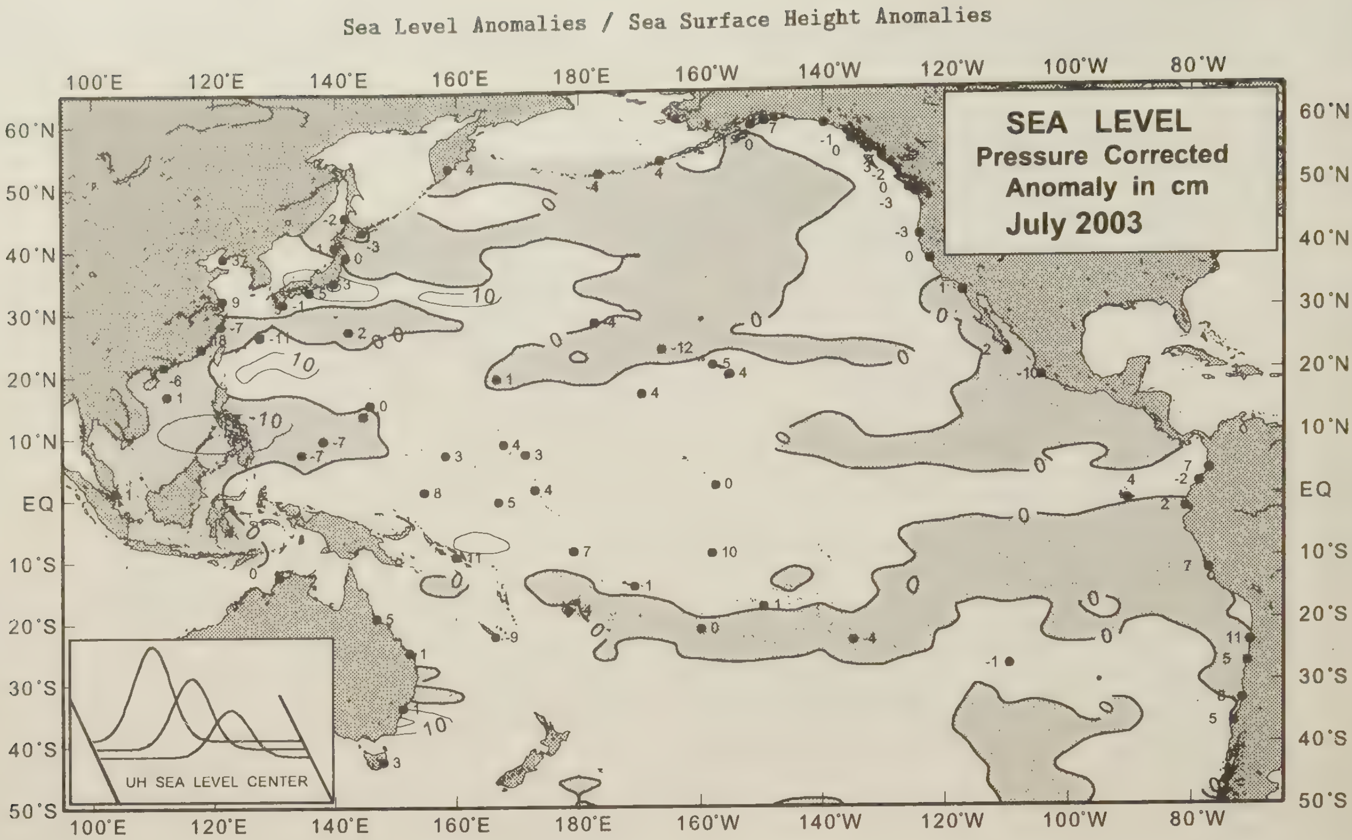
Fig. 21　Trajectories of drifting buoys in the Pacific Ocean during August 2003. Each track is for one buoy. Small circles represent the last positions for the month.

Depth-Longitude Sections of Equatorial Temperature & Anomalies



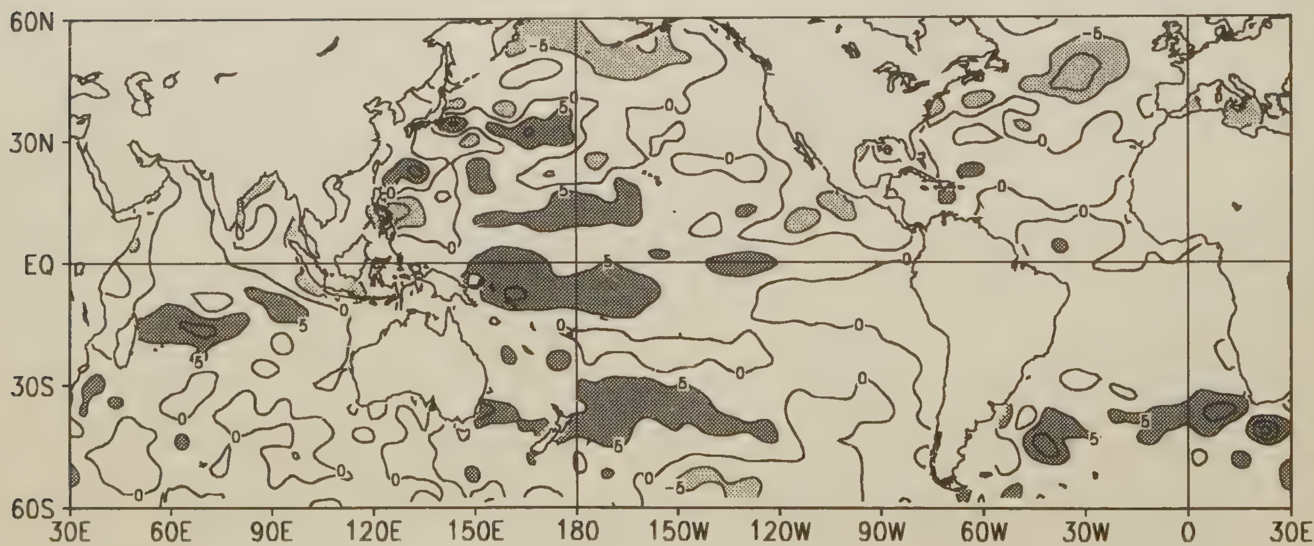
第22図　太平洋赤道に沿う表層水温（上）及び偏差（下）の深度－経度断面図（2003年 8月）

Fig. 22 Depth-longitude sections of temperature (top) and anomalies (bottom) along the equator in the Pacific Ocean for August 2003. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (top) and 0.5°C (bottom). Values greater than 28°C in the top panel are shaded. In the bottom panel, values greater than 1°C are shaded and values less than -1°C are spotted. Anomalies are computed from 1987-2002 base period means.



第 23 図　太平洋月平均海面水位偏差図（2003 年 7 月）

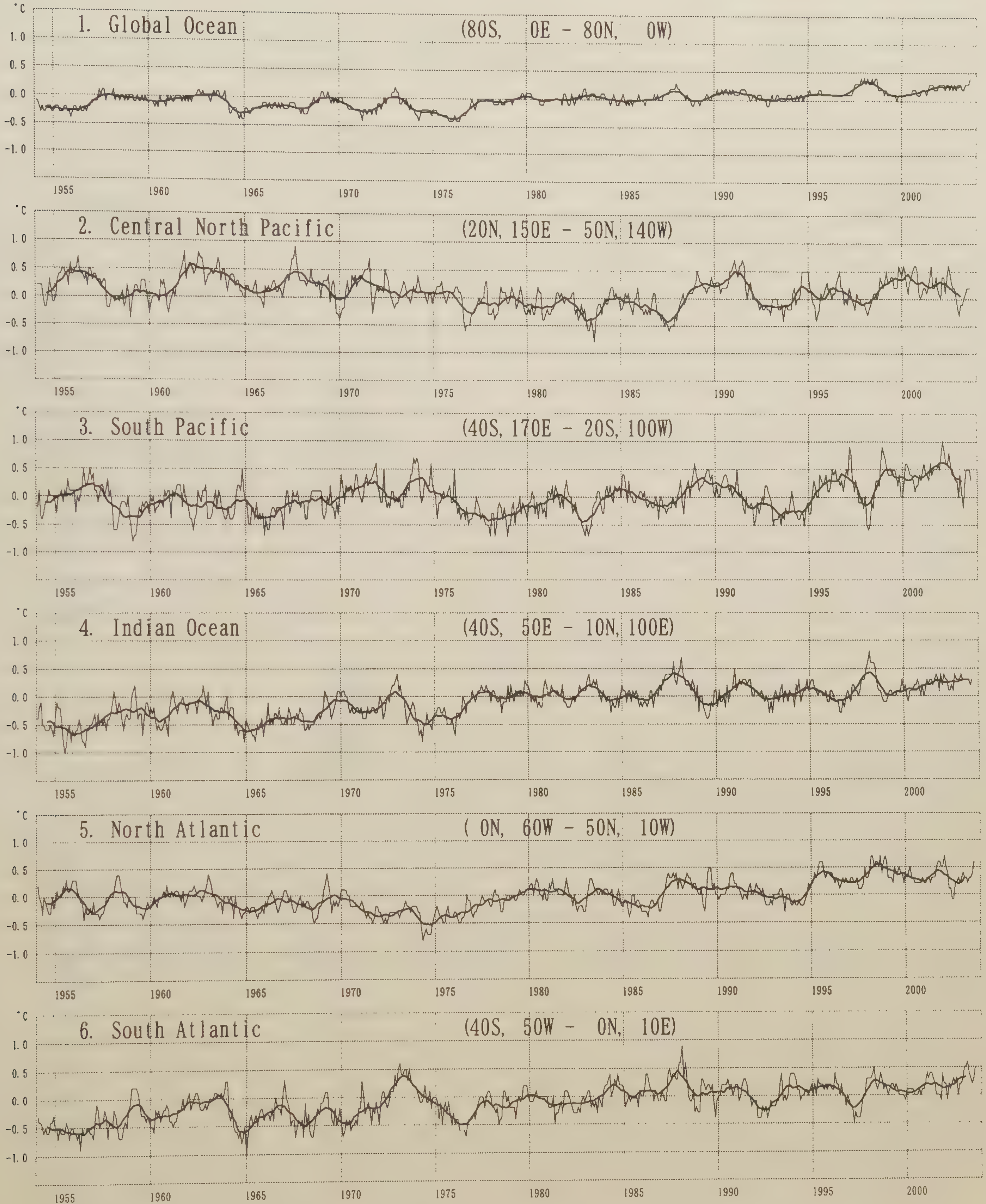
Fig. 23　Monthly sea level anomalies for July 2003 obtained from mean sea level (1993-2001) adjusted for atmospheric pressure. This figure is prepared by the SOC of ISLP-PAC, Department of Oceanography, University of Hawaii.



第 24 図　全球月平均海面高度偏差図（2003 年 7 月）

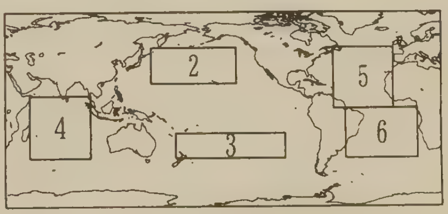
Fig. 24　Monthly sea surface height anomalies in the global ocean derived from the altimeter data of Jason-1 for July 2003. Contour interval is 5 cm. Positive anomalies exceeding +5 cm are shaded and negative anomalies exceeding -5 cm are spotted. Anomalies are computed from 1993-1998 base period means.

Long-term Variation of Monthly Mean SST Anomalies

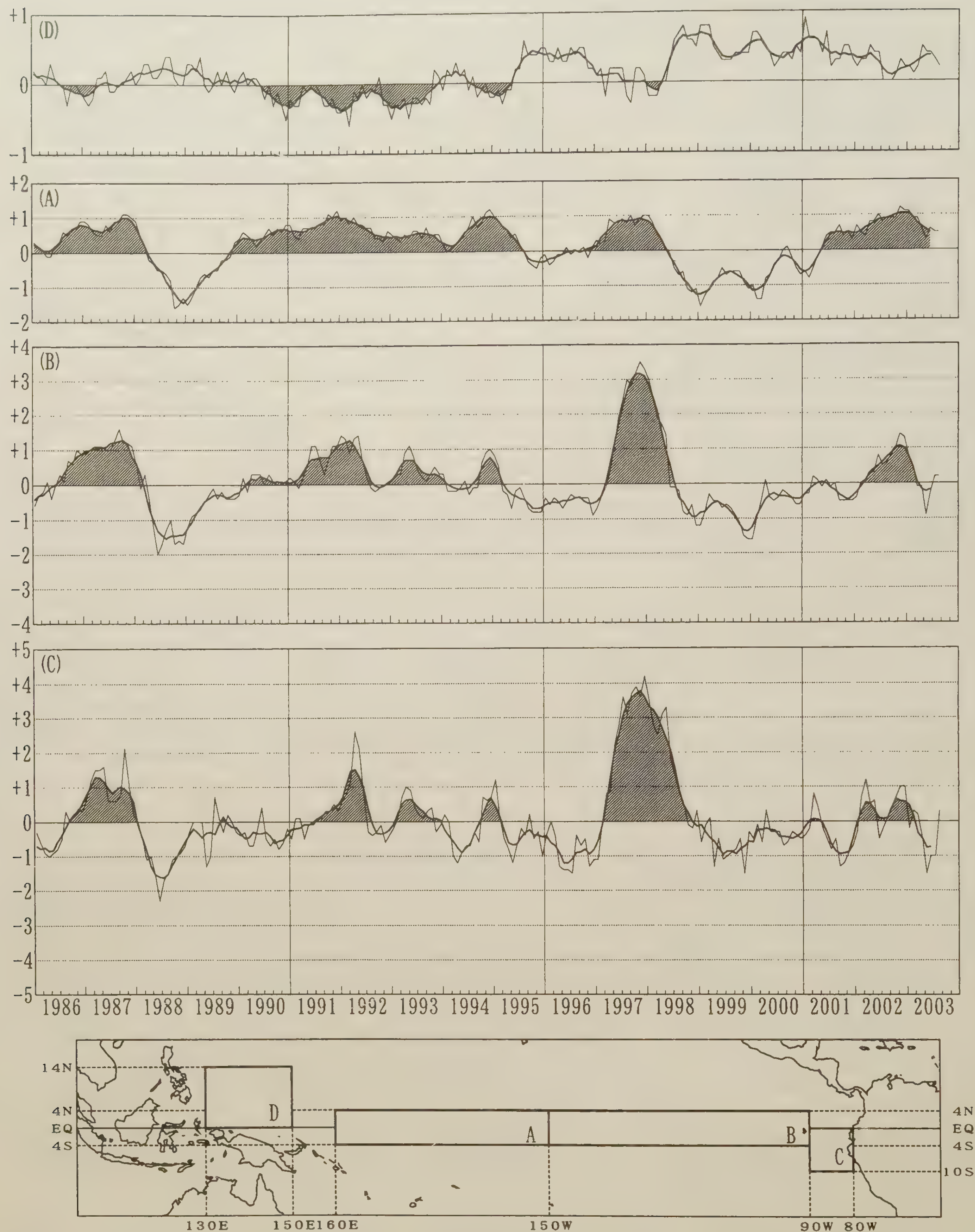


第25図 海域平均海面水温偏差の長期変動

Fig. 25 Long-term variations of monthly mean sea surface temperature anomalies (°C) for the areas shown in the right panel. Anomalies are computed from the JMA climatology (1971-2000). Thin lines show the monthly mean and thick lines their 13-month running means.



Time Series of Tropical Pacific SST Anomalies



第26図　太平洋熱帯域の海面水温偏差時系列図

Fig. 26 Time series of monthly mean SST anomalies (°C) in the tropical Pacific Ocean for the areas indicated at the bottom panel. Thin lines show the monthly means and thick lines their 5-month running means. Positive anomalies (A, B, C) and negative anomalies (D) are shaded. Anomalies are computed from the JMA climatology (1971-2000).

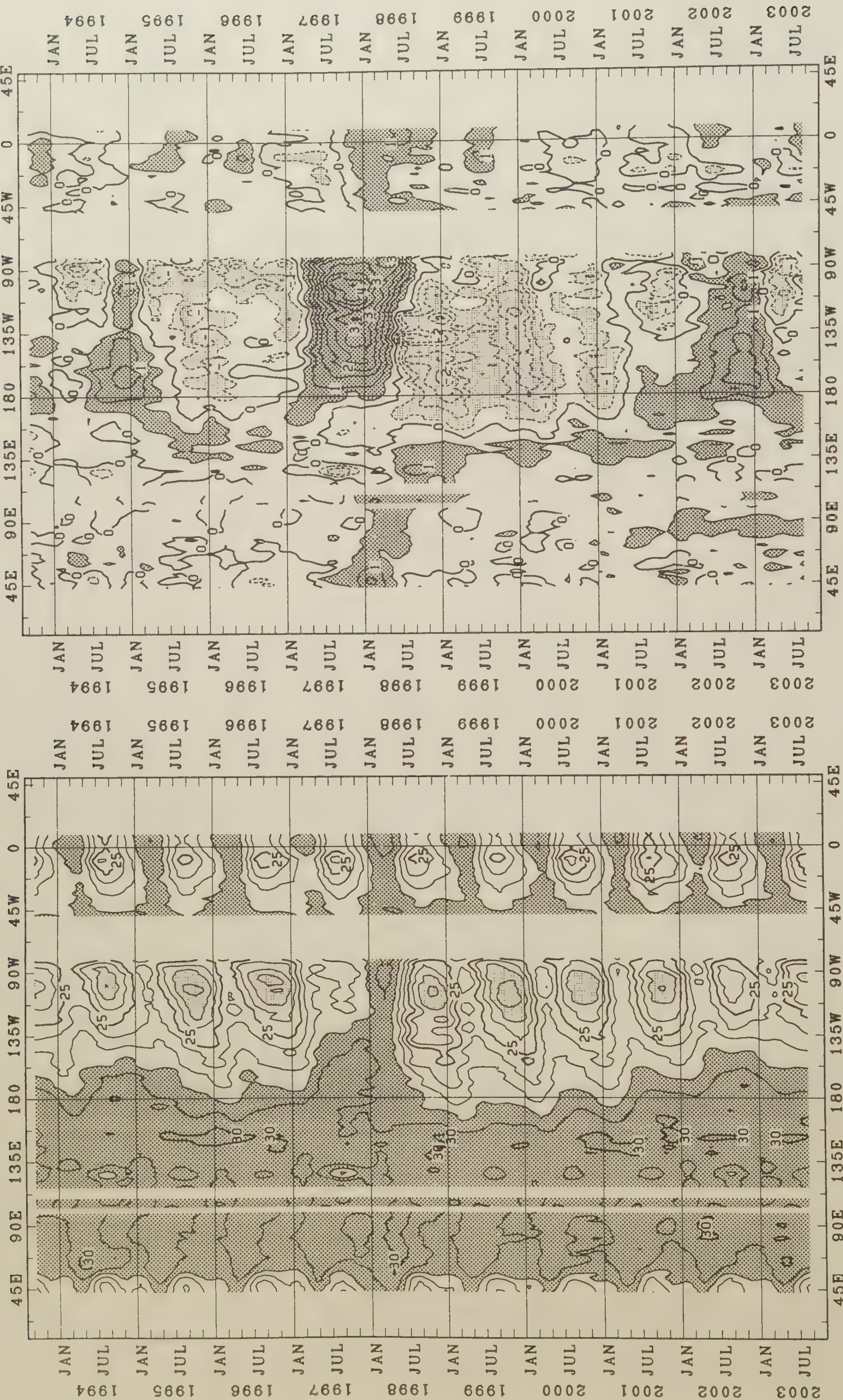
Monitoring Indices in the Tropical Pacific

MONTH YEAR	SEA SURFACE TEMPERATURE AND ANOMALY (°C) REGION D 14N-EQ 130E-150E		REGION A 4N-4S 160E-150W		REGION B 4N-4S 150W-90W		REGION C EQ-10S 90W-80W		SOI	SEA LEVEL PRESSURE ANOMALY (hPa) TAHITI 17-33S 149-37W	DARWIN 12-24S 130-52E
JAN 01	29.4	0.9	27.4	-0.6	25.1	-0.3	24.1	-0.4	0.8	2.5	0.6
FEB 01	28.9	0.6	27.2	-0.8	26.0	-0.3	25.8	-0.2	1.0	-0.4	-3.2
MAR 01	29.1	0.6	27.6	-0.5	27.3	0.2	27.1	0.8	0.8	1.3	-0.2
APR 01	29.4	0.6	28.0	-0.2	27.3	0.1	25.8	0.4	0.1	-0.1	-0.3
MAY 01	29.7	0.4	28.7	0.1	26.8	-0.1	24.1	-0.2	-0.7	-0.2	0.9
JUN 01	30.1	0.7	28.9	0.4	26.3	0.1	22.4	-0.5	0.2	-0.2	-0.5
JUL 01	29.5	0.2	29.0	0.5	25.3	-0.1	21.1	-0.8	-0.2	-0.1	0.3
AUG 01	29.5	0.3	28.9	0.5	24.7	0.0	20.4	-0.5	-0.7	-0.9	0.1
SEP 01	29.6	0.3	29.1	0.7	24.2	-0.5	19.2	-1.3	0.1	-0.2	-0.4
OCT 01	29.9	0.5	28.8	0.4	24.2	-0.5	19.7	-1.2	-0.1	-0.9	-0.9
NOV 01	29.8	0.5	28.9	0.5	24.2	-0.5	20.9	-0.9	0.6	0.7	-0.4
DEC 01	29.3	0.3	28.5	0.3	24.5	-0.5	22.2	-0.7	-0.8	-1.2	0.3
JAN 02	28.7	0.2	28.7	0.7	25.0	-0.4	24.2	-0.3	0.3	1.3	0.7
FEB 02	28.6	0.3	28.5	0.5	26.3	0.0	26.7	0.7	0.7	1.5	-0.2
MAR 02	28.8	0.3	28.5	0.4	27.2	0.1	27.5	1.2	-0.2	0.4	1.0
APR 02	29.3	0.5	29.0	0.8	27.5	0.3	25.9	0.5	-0.1	0.1	0.3
MAY 02	29.7	0.4	29.4	0.8	27.2	0.3	24.9	0.6	-1.3	-1.1	0.7
JUN 02	29.8	0.4	29.5	1.0	27.0	0.8	22.4	-0.5	-0.4	-0.2	0.4
JUL 02	29.3	0.0	29.3	0.8	25.9	0.5	21.7	-0.2	-0.7	0.5	1.6
AUG 02	29.2	0.0	29.3	0.9	25.3	0.6	21.0	0.1	-1.2	-1.4	0.5
SEP 02	29.3	0.0	29.3	0.9	25.5	0.8	20.9	0.4	-0.5	-0.3	0.8
OCT 02	29.5	0.1	29.3	0.9	25.7	1.0	21.6	0.7	-0.5	-1.0	-0.3
NOV 02	29.6	0.3	29.6	1.2	26.1	1.4	22.8	1.0	-0.4	0.1	1.0
DEC 02	29.2	0.2	29.3	1.1	26.3	1.3	23.9	1.0	-1.0	-0.1	1.7
JAN 03	28.7	0.2	29.1	1.1	26.2	0.8	24.3	-0.2	-0.1	-0.1	0.2
FEB 03	28.4	0.1	28.9	0.9	26.8	0.5	26.3	0.3	-0.5	-1.5	-0.2
MAR 03	28.7	0.2	29.0	0.9	27.0	-0.1	26.5	0.2	-0.3	-0.2	0.5
APR 03	29.3	0.5	28.8	0.6	27.1	-0.1	24.9	-0.5	-0.1	0.5	0.8
MAY 03	29.7	0.4	28.9	0.3	26.0	-0.9	22.8	-1.5	-0.6	-0.7	0.2
JUN 03	29.8	0.4	29.1	0.6	25.9	-0.3	21.9	-1.0	-0.9	-0.9	0.4
JUL 03	29.6	0.3	29.0	0.5	25.6	0.2	20.9	-1.0	0.2	0.7	0.3
AUG 03	29.4	0.2	28.9	0.5	24.9	0.2	21.2	0.3	0.0	-0.2	-0.1

第1表　太平洋熱帯域の大気及び海洋の監視指数

Table 1 Atmospheric and oceanic monitoring indices in the tropical Pacific Ocean

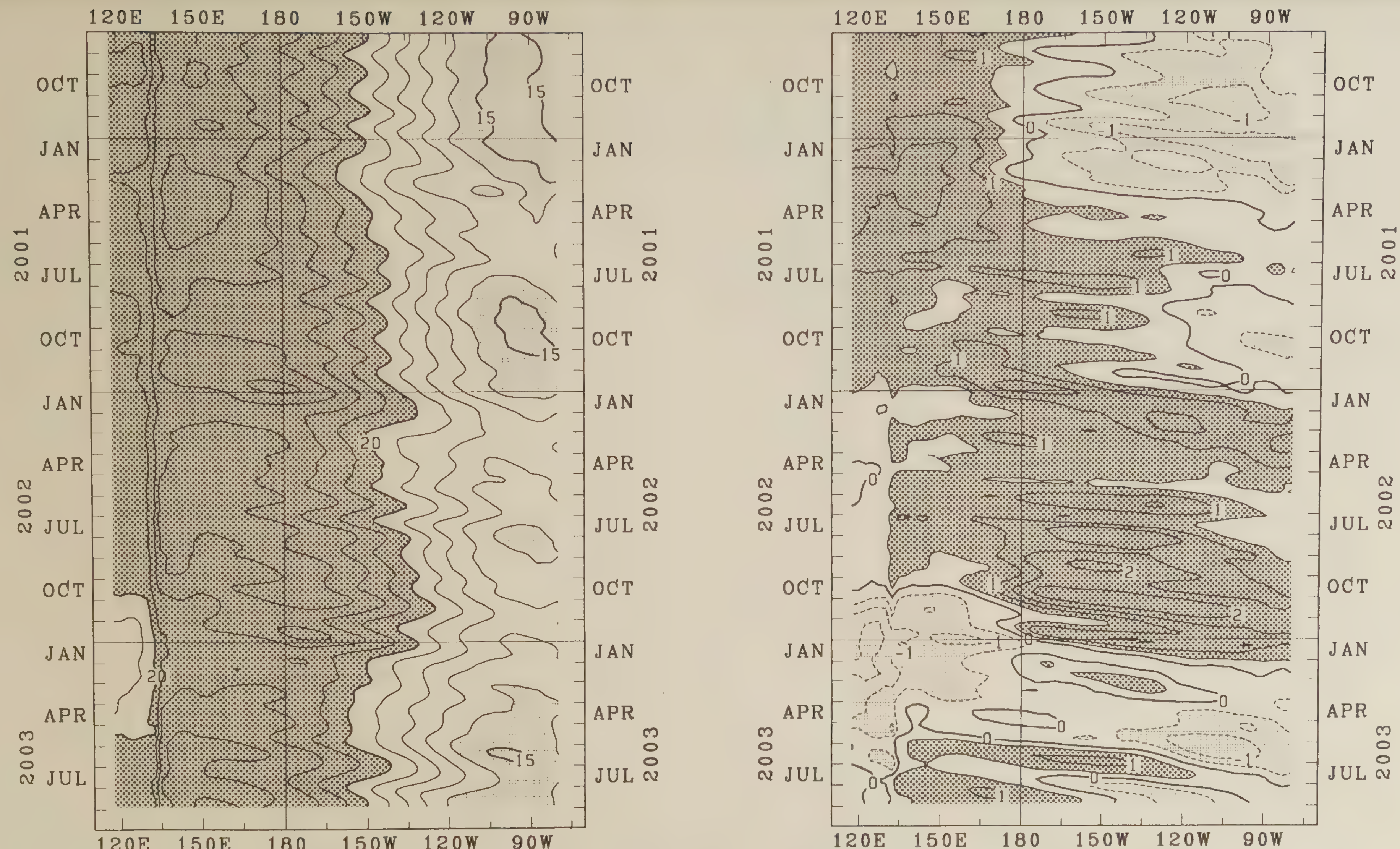
Time-Longitude Section of SST & Anomalies



第27図　赤道に沿った海面水温（左）および偏差（右）の時間-経度断面図

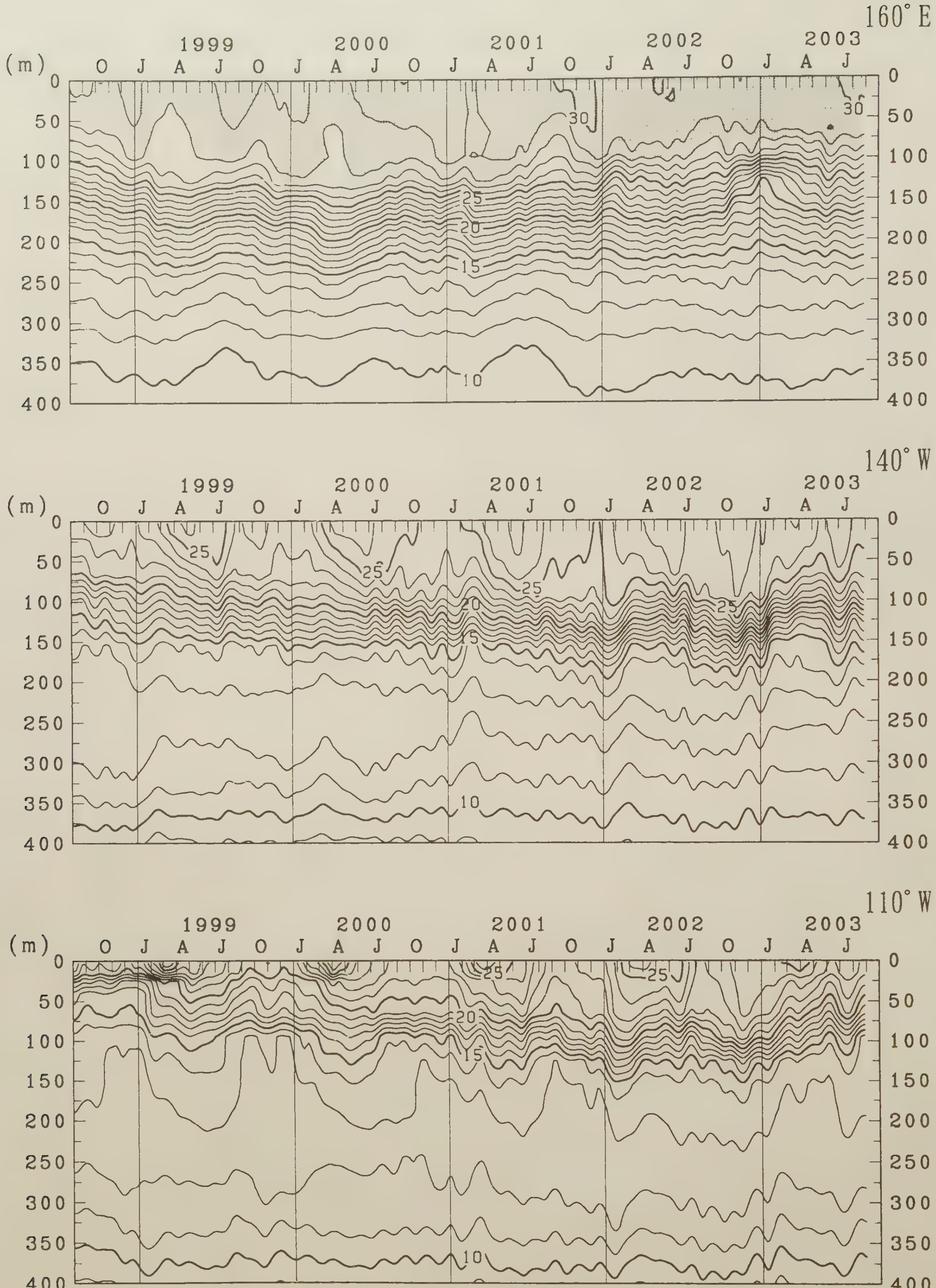
Fig. 27　Time-longitude sections of SSTs (left) and anomalies (right) along the equator (2°N-2°S) in the global ocean. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 28°C (+0.5°C) are shaded and values less than 23°C (-0.5°C) are spotted in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1971-2000 base period means.

Time-Longitude Sections of Ocean Heat Content & Anomalies (Eq.)



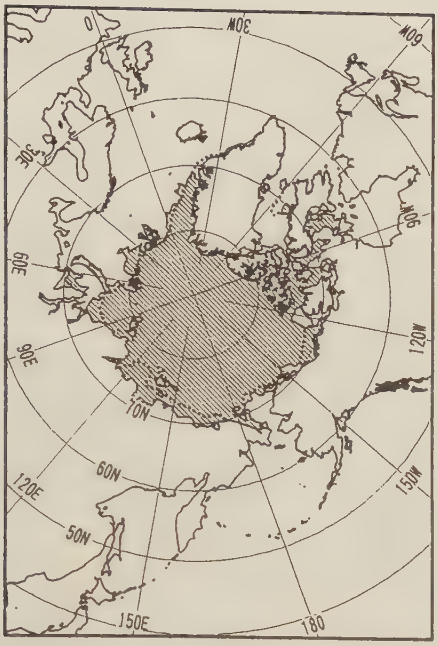
第28図　太平洋の赤道に沿う海洋表層の貯熱量（左）及び偏差（右）の時間－経度断面図

Fig. 28 Time-longitude sections of ocean heat content in the upper 260 m along the equator (left) and anomalies (right) in the Pacific Ocean. Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C (left) and 0.5°C (right). Values greater than 20°C (+0.5°C) are shaded and values less than 16°C (−0.5°C) are spotted in the left (right) panel. Dashed contours indicate negative anomalies in the right panel. Anomalies are computed from 1987-2002 base period means.



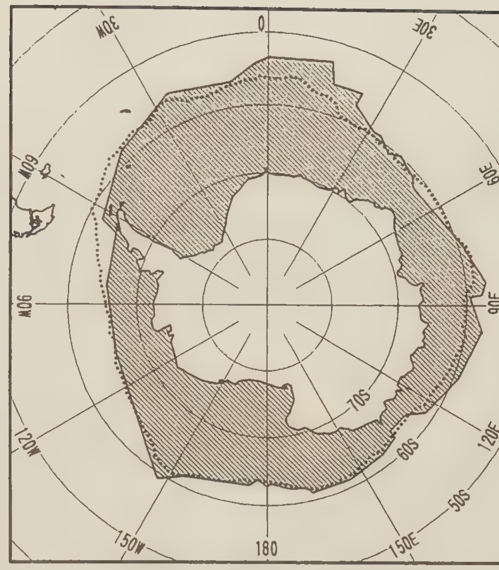
第29図　太平洋赤道域の表層水温の時間－深度断面図
（上：西部、中：中部、下：東部）

Fig. 29 Time-depth sections of equatorial subsurface temperature for the western Pacific (top, 160°E), the central Pacific (middle, 140°W) and the eastern Pacific (bottom, 110°W). Data are derived from the Ocean Data Assimilation System of JMA. Contour interval is 1°C. Values greater than 28°C are shaded.



第30-1図　北極域の海氷図（2003年 8月15日）

Fig.30-1 Sea ice chart in the Arctic on 15 Aug. 2003.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1972 through 1990.
The data source is the National Ice Center (USA).



第30-2図　南極域の海氷図（2003年 8月14日）

Fig.30-2 Sea ice chart in the Antarctic on 14 Aug. 2003.
The shaded area represents the sea ice extent. The dotted line denotes the mean ice edge averaged for the period from 1973 through 1990.
The data source is the National Ice Center (USA).

第30-1表 流氷に関する初終日(2002年12月から2003年5月まで)

Table 30-1. First and Last dates of drift ice at the coastal stations (From December 2002 to May 2003)

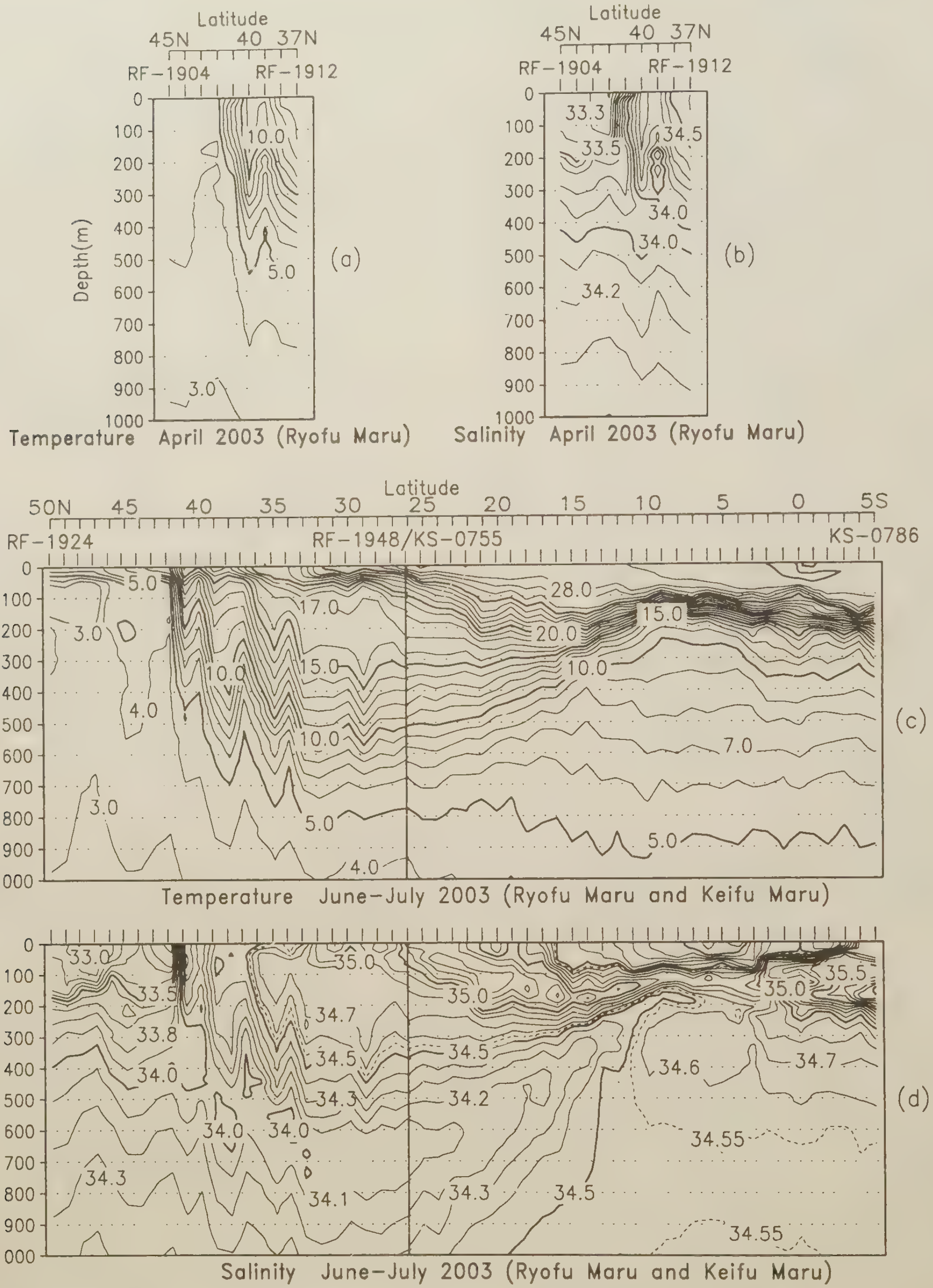
地点 Station	流氷 Drift ice				流氷接岸初日 First date of drift ice on shore	海明け First date of shore lead appearance
	初日 First date	終日 Last date	期間 Period	日数 Days		
稚　内 WAKKANAI	2. 24(+14)	2. 24(-15)	1(-29)	1(-10)	—	*
北見枝幸 KITAMIESASHI	1. 21(- 2)	4. 10(+ 9)	80(+11)	57(+11)	1. 26(- 5)	3. 14(+ 2)
雄　武 OMU	1. 15(- 7)	4. 22(+17)	98(+24)	73(+18)	1. 27(- 5)	3. 24(+10)
紋　別 MOMBETSU	1. 15(- 7)	4. 22(+17)	98(+24)	81(+23)	1. 26(-10)	4. 10(+25)
網　走 ABASHIRI	1. 11(- 9)	4. 28(+12)	108(+21)	105(+28)	1. 26(- 6)	4. 15(+22)
根　室 NEMURO	1. 26(-18)	4. 16(+14)	81(+32)	74(+41)	2. 7(-11)	*
釧　路 KUSHIRO	2. 24(- 5)	3. 16(- 2)	21(+ 3)	12(+10)	—	*

( ) : deviation from normal for the period from 1971 to 2000
＋ : later or more than normal, － : earlier or less than normal
＊ : no observations, —— : no phenomenon



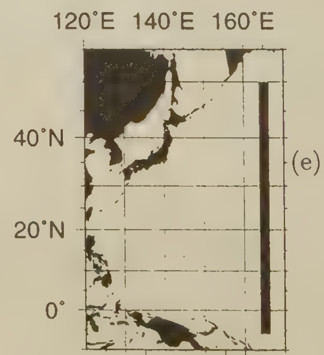
第30-3図 沿岸海氷観測地点地図

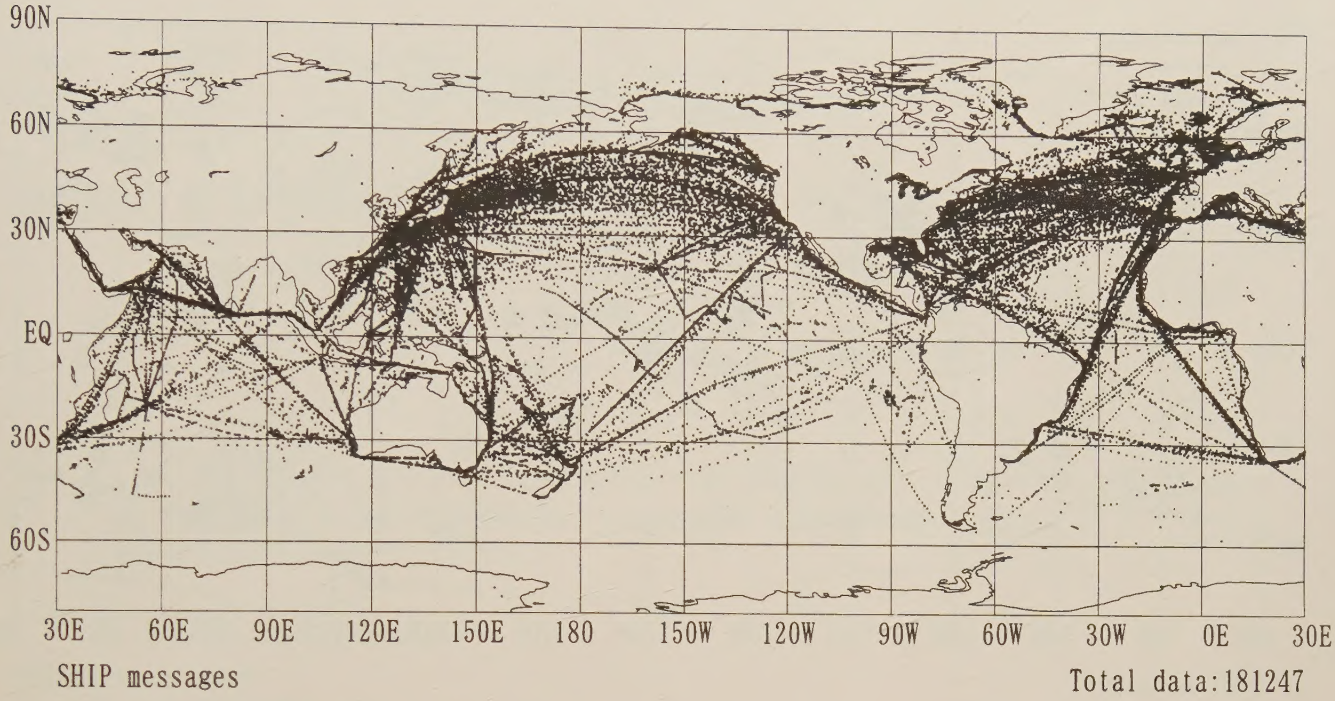
Fig. 30-3 Map of the coastal stations

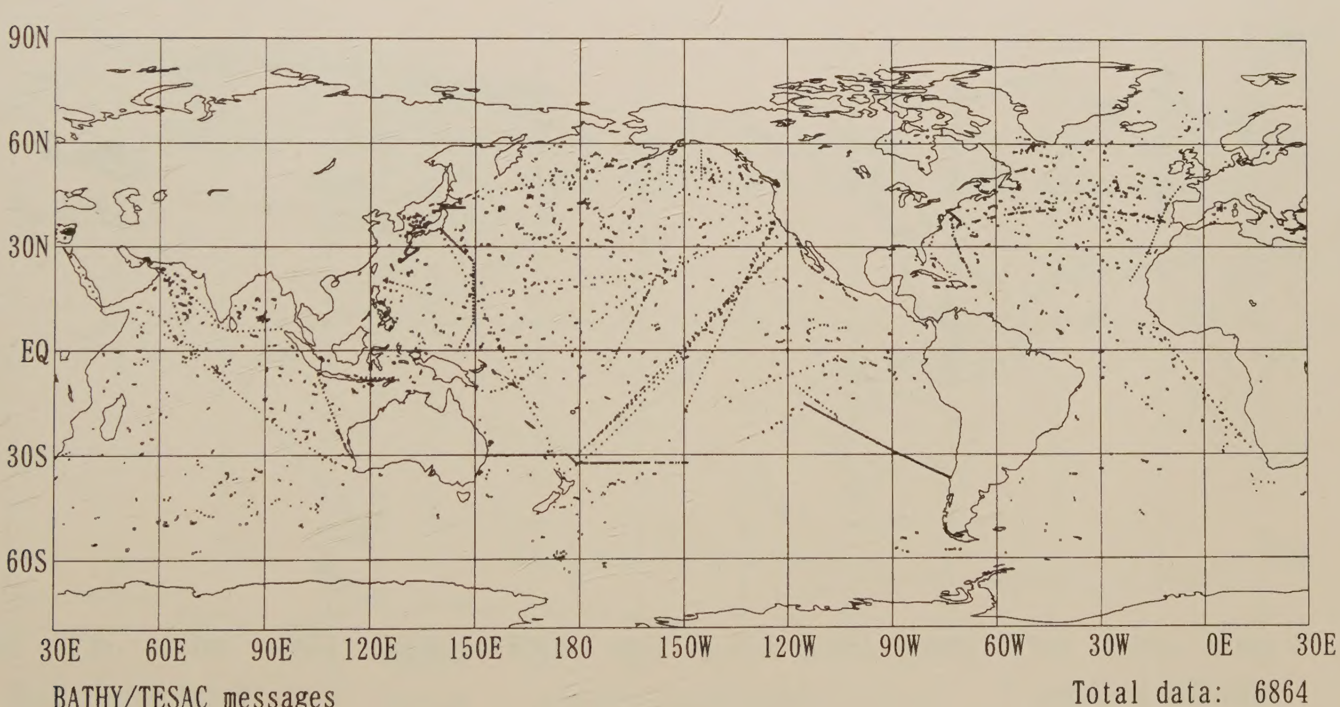


第31図 気象庁凌風丸及び神戸海洋気象台啓風丸による東経165度に沿った鉛直断面図. (a) 水温 (2003年4月), (b) 塩分 (2003年4月), (c) 水温 (2003年6～7月), (d) 塩分 (2003年6～7月), (e) 観測位置図.

Fig. 31 Vertical sections along 165°E by R/V Ryofu Maru and R/V Keifu Maru. (a) Water temperature observed in April 2003, (b) Salinity observed in April 2003, (c) Water temperature observed in June-July 2003, (d) Salinity observed in June-July 2003, (e) Location of observations along 165°E.

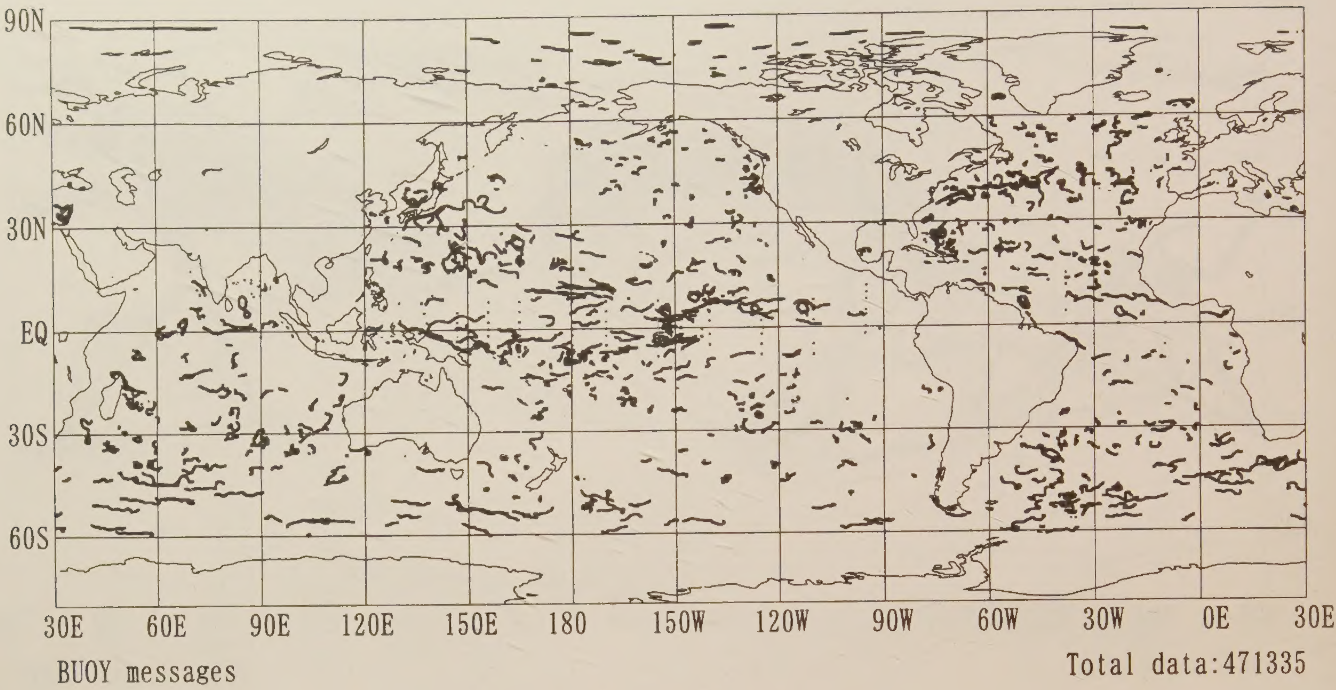


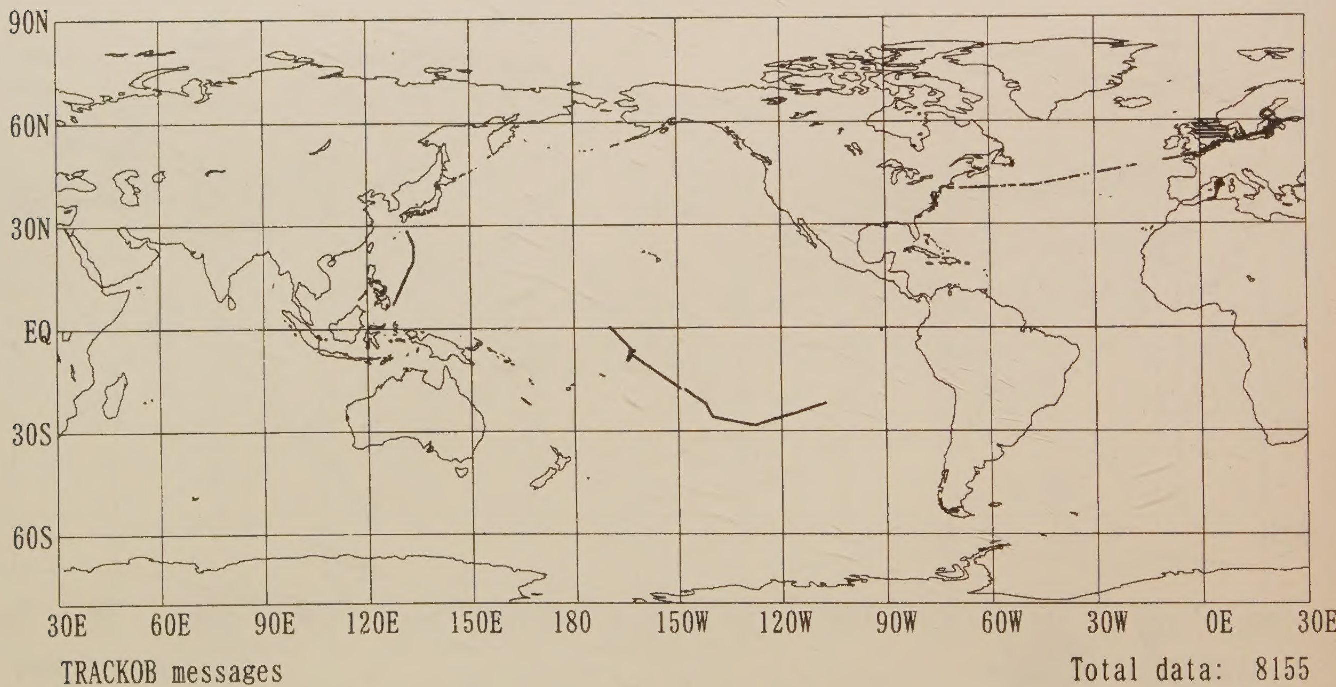




第32-1図　測点分布図(2003年 8月)

Fig. 32-1 Geographical distribution of SHIP messages (top) and BATHY/TESAC messages (bottom) for August 2003.





第32-2図　測点分布図(2003年 8月)

Fig. 32-2 Geographical distribution of BUOY messages (top) and TRACKOB messages (bottom) for August 2003.

気象庁海洋月報

Monthly Ocean Report

August 2003 (No. 128)

本月報掲載の 2003 年 8 月のプロダクトには、気象庁が観測したデータ及び GTS（全球気象通信網）を通じて入手した国際気象通報式による通報のほか、下記の機関等から提供いただいたデータを使用しています。御礼申し上げます。

防衛庁、水産庁、海上保安庁

水産総合研究センター

海洋科学技術センター、（社）漁業情報サービスセンター

東京大学、鹿児島大学

水産試験場等（北海道、青森県、岩手県、宮城県、福島県、茨城県、千葉県、東京都、富山県、福井県、愛知県、三重県、京都府、兵庫県、和歌山県、島根県、山口県、高知県、佐賀県、宮崎県）

（順不同）

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